An Address
ON
THE IMPORTANCE OF POST-GRADUATE STUDY.

Delivered at the Opening of the Museums of the Medical Graduates' College and Polyclinic on July 4th, 1900,

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MR. PRESIDENT AND GENTLEMEN,—If the licence to practise meant the completion of his education how sad it would be for the practitioner, how distressing to his patients! More clearly than any other the physician should illustrate the truth of Plato's saying that education is a life-long process. The training of the medical school gives a man his direction, points him the way and furnishes a chart, fairly incomplete, for the voyage, but nothing more. Post-graduation study has always been a characteristic feature of our profession. These 300 years the schools of Italy, Holland, France, Austria, and Germany have in turn furnished instruction to the young English practitioners who believed in the catholicity of medicine and who felt the sharp sting of the remark which associates homely wits with home-keeping youths. At first it was the grand tour, and many of the masters spent years in foreign study. In spite of our journals and international societies and increased facilities for travel I am not sure that among the teachers in our art the world over medicine to-day is more cosmopolitan than it was in the seventeenth and eighteenth centuries. We now spend a few months or a year in foreign study, whereas our great-grandfathers thought nothing of two and three years. I have seen the MSS. Journal of Dr. John Morgan (a Pennsylvania colonist), the founder of the first medical school in America (University of Pennsylvania), who, after graduation at Edinburgh, spent three years on the continent and became thoroughly familiar with Italian, Dutch, and French medicine, reaching such distinction as a student that he took his seat as a corresponding member of the Paris Academy of Surgery and was elected a Fellow of the Royal Society. Linacre, Caius, and Harvey remain to-day the models for all students in foreign lands, but the pace they set is a hard one to keep up. In the rapid extension of methods and subjects in medical education during the past quarter of a century post-graduate teaching has come in for a full share of attention. In the United States many special schools have been organised and perhaps more systematic attention has been paid to the subject than anywhere except in Germany. In New York, in Philadelphia, and in Chicago, the polyclinics and post-graduate colleges have been widely appreciated by practitioners and have done much good. Less successful attempts have been made by some of the ordinary medical schools, but the leading ones have now abandoned in great part the teaching of graduates. Personally, I have been engaged in the work for the past 11 years. For the first five years of the organisation of the Johns Hopkins Hospital we admitted only physicians, but since the medical school proper began we have had courses for graduates in the months of May and June. At any time during the year, at the discretion of the professor, a few special students may enter the classes or work in the laboratories. So far as the subject of medicine is concerned it is easy to arrange very attractive courses in routine ward instruction, in physical diagnosis, and in clinical micropsy. I have just finished a six weeks' course of clinical instruction to a class of about 30 general practitioners, and to meet these good earnest students from all parts of the country, some of whom have been in practice 15 or 20 years, stimulates one's optimism as to the outlook in the profession.

Upon the advantage which London offers for graduate study it would be superfluous to dwell, since here is collected a larger number of sick people than in any city in the world. The special hospitals offer unequalled facilities for the study of diseases of the eye, of the skin, of the nervous system, and of the diseases peculiar to women and to children. The absence of concentration of material so convenient in Vienna is counterbalanced by the much more elaborate equipment to be found in the special hospitals. There has been but one thing lacking—the organisation necessary to bring patients and students into intimate association, for which purpose this college for graduates was started. Until recently the physician who came to London felt lost and perplexed, and even if he took out three or four hospital tickets there was but little systematic teaching and he had to pick up information as best he could. Here he finds a local habitation with a comfortable reading-room, a good library, and a well-arranged curriculum embracing all the practical branches of medicine and surgery.

The value of a Museum as a means of practical instruction was first practically demonstrated by John Hunter whose magnificent collection is in itself a college for graduates. So extensive is the material, so admirably arranged, and so well catalogued that to the general practitioner and to the special student it offers a unique field for study. I am surprised that a larger number of physicians do not take advantage of the opportunity there offered to study accurately and systematically the manifold manifestations of disease. To Hunter's example is owing the place which the museum occupies in the medical schools of this country. You have been fortunate in having associated with your College a man with a truly Hunterian mind. In the broad scope of his work, in the untiring zeal with which he has studied the natural phenomena of disease, in his love for specimens and collections, Mr. Jonathan Hutchinson, bears a strong likeness to the immortal Hunter. No individual contributor in this country has made so many careful observations upon so many diseases. He is the only great generalised specialist which the profession has produced, and his works are a storehouse upon which the surgeon, the physician, the neurologist, the dermatologist, and other specialists freely draw. When anything turns up which is anomalous or peculiar, anything upon which the text-books are silent and the systems and cyclopædias are dumb, I tell my students to turn to the volumes of Mr. Hutchinson's "Archives of Surgery," as if it is not mentioned in them we surely have something very much out of the common. It is very fortunate that the collection which he has made will be kept together, as it will be of great service to students from all parts of the world. In one respect it is unique, pictorial and clinical, not anatomical and pathological, and it will remain a worthy monument to the zeal and perseverance of a remarkable man, a man who has secured the homage of a larger number of clinical workers than any Englishman of his generation.

Post-graduate instruction is needed in all classes among us. The school for the young practitioner is a general practice in which the number and variety of cases will enable him at once to put his methods into daily use. A serious defect may warp his course from the outset. Our students study too much under the one set of teachers. In English and American schools they do not move about enough. At a tender age, four or five years give a man a sense of local attachment to place and teachers which is very natural, very nice, but not always the best thing for him. He goes out with a strong bias already in his mind and is ready to cry "I am of Guy's," "I am of Bart's," or "I am an Edinburgh man." To escape from these local trammels, which may badly handicap a man by giving him an arrogant sense of superiority often most manifest when there is least warrant, is very difficult. I knew three brothers, Edinburgh men, good fellows at heart and good practitioners, but for them the science and art of medicine never extended beyond what their old teachers had taught. A Guy's man they could just endure, for the sake, as one of them said, of Bright and Cooper and Addison, but for men of other schools they entertained a supreme and really ludicrous contempt.

There are two great types of practitioners—the routinist and the rationalist—neither common in the pure form. Into the clutches of the demon routine the majority of us ultimately come. The mind, like the body, falls only too readily into the rut of oft-repeated experiences. One evening in the far North-West, beneath the shadows of the Rocky Mountains we camped beside a small lake from which diverging in all directions were deep furrows, each one as straight as an arrow, as far as the eye could reach. They were the deep ruts or tracks which

countless generations of buffaloes had worn in the prairie as they followed each other to and from the water. In our minds countless, oft-repeated experiences wear similar ruts in which we find it is easiest to travel, and out of which many of us never dream of straying. Year by year we follow the same plan in practice, give the same drugs, and settle down into routinists of a most commonplace type. Last year I was called to a town in Pennsylvania and having to wait until late in the evening for the return train, I insisted, as is my wont, that the medical man should carry on his daily work and allow me to help him if possible. An afternoon round among patients chiefly of the mechanic class showed me a shrewd cheery man who in 20 years had gained the confidence and esteem of his patients. Kindly, hopeful words, very sensible directions about diet, and some half-dozen drugs, seemed the essential in his practice. In the evening I saw him dispose of a dozen patients at an out-door dispensary rate; the examination was limited to the pulse, the tongue, and sometimes the throat. The dispensing, which was of the most primitive sort, was done at the table, on which stood four or five tin and paper boxes containing large quantities of calomel, soda, antipyrin, and Dover's powder. Other drugs, he said, were rarely necessary. He never used a stethoscope, he had no microscope or instruments of precision other than the thermometer. In reply to my questions he said "that he rarely had to make an examination. If the patient has fever I send him to bed, if there is œdema I ask for the urine. Of course, I make many mistakes and I sometimes get caught, but not oftener than the other fellows, and when I am in serious doubt I ask for a consultation." This was a man of parts, a graduate from a good school, but early in his career he had become very busy, and gaining the confidence of the people and having much confidence in himself he had unconsciously got into a rut, out of which at 40 only one thing could lift him—a prolonged course of additional study. This is by no means an exaggerated picture of a routinist in general practice. We all have our therapeutic ruts and we all know consultants from whom patients find it very difficult to escape without their favourite prescription, no matter what the malady may be. Men of this stamp gain a certain measure of experience, and if of a practical turn may become experts in mechanical procedures, but to experience in the true sense of the word they never attain. In reality they suffer with the all-prevailing vice of intellectual idleness. It is so much easier to do a penny-in-the-slot sort of practice, in which each symptom is at once met by its appropriate drug than to make a careful examination and really to study the case systematically. Much depends on a man's mental constitution, but much more on the sort of training he has had. If when a student good methods are not acquired it is very hard to get into proper habits of work in practice.

The rationalist, on the other hand, always approaches a patient as a mathematician does a problem. There is something to be found out; in each case, however trivial, there is something novel, and the problems of causation and the question of relief, while not perhaps of equal importance, are of equal interest. He may be just as busy as his idle brother, but he finds time to keep up a technical dexterity in the use of instruments of precision and the stethoscope and the microscope are daily helps in diagnosis. These men are the delight of the consultant. To go into the country and find the diagnosis made in a case of mitral stenosis, a Friedrich's ataxia, a case of leukæmia, or one of myxœdema gives a man a thrill of pleasure such as Comte says he always felt when a student gave him an intelligent set of answers in an examination. It is this class of practitioners for whom the post-graduate courses are helpful and necessary. They alone feel the need of keeping abreast with the times, and men of this type will return every few years, finding that a three months' course of study not only improves and helps them personally but is most beneficial in their practices.

The members of no class in our ranks travel to the waters in deeper or straighter ruts than the specialists. To work for years at diseases of the skin, ophthalmology, gynæcology, &c., necessarily tends to make a man narrow not only as a practitioner but in other relations. One of the best features of British medicine has been the practice of specialties by general surgeons and physicians. It has been better for the men themselves perhaps than for the patients and for the particular branch practised. Nowadays, to master even the smallest specialty requires concentrated effort of years' duration, and to counteract the benumbing influence of isolation a man must scan the wide horizon of pathology and must cultivate ardently the general interests of his profession. The degree of advancement of the specialties in different countries must be borne in mind by our friends and there are few who have been in practice for five or ten years who would not be benefited by a course of study in some foreign country.

After all, no men among us need refreshment and renovation more frequently than those who occupy positions in our schools of learning. Upon none does intellectual staleness steal "with velvet step, unheeded, softly," but not the less relentlessly. Dogmatic to a greater or less degree all successful teaching must be, but year by year, unless watchful, this very dogmatism may react upon the teacher who finds it so much easier to say to-day what he said last year. After a decade he may find it less trouble to draw on home supplies than to go into the open market for wares, perhaps not a whit better, but just a wee bit fresher. After 20 years the new even when true startles, too often repels; after 30, well, he may be out of the race, still on the track perhaps, even running hard, but quite unconscious that the colts have long passed the winning post. These unrefreshed, unregenerate teachers are often powerful instruments of harm and time and again have spread the blight of a blind conservatism in the profession. Safely enthroned in assured positions, men of strong and ardent convictions, with faithful friends and still more faithful students, they too often come within the scathing condemnation of the blind leaders of the blind, of those who would neither themselves enter into the possession of new knowledge nor suffer those who would to enter. The profession has suffered so sorely from this blight of intellectual old fogeyism that I may refer to the most glaring instances in our history. In the scientific annals of this great metropolis there is no occasion more memorable than April 16th, 1616, when Harvey began his revolutionary teaching. Why the long, the more than Horatian delay in publishing his great discovery? He knew his day and generation and even after 12 years of demonstration, which should have disarmed all opposition, we know how coldly the discovery was received, particularly in certain quarters. Harvey, indeed, is reported to have said that he did not think any man above 40 years of age had accepted the new truth. Many of us have lived through and taken part in two other great struggles. The din of battle over the germ theory of disease still rings in our ears. Koch's brilliant demonstration of the tubercle bacillus had a hard up-hill fight to recognition. The vested interests of many minds were naturally against it, and it was only the watchers among us, men like Austin Flint, who were awake when the dawn appeared. It is notorious that the great principles of antiseptic surgery have grown slowly to acceptance, and nowhere more slowly than in the country in which they were announced, the country which has the great honour to claim Lord Lister as a citizen. Old fogeyism of the most malignant type stood in the way, and in some places, strange to say, still stands. Mentally it is possible that surgeons age earlier than physicians. I remember as a student, listening to the introductory lecture of a distinguished surgeon at one of the metropolitan schools the burden of whose discourse was the finality which had been reached by modern surgery. In boldness of conception and in precision of execution, he said, we could scarcely hope to see any further progress. Poor man! Cerebral, renal, and hepatic surgery, to say nothing of other operative advances, followed in rapid succession, and I only quote this as illustrating the state of mental blindness with which we teachers may be smitten.

As Locke says: "Truth scarce ever yet carried it by vote anywhere at its first appearance," and these well-known examples illustrate a law in human knowledge that a truth has to grow to acceptance with the generation in which it is announced. Progress is an outcome of a never-ending struggle of the third and fourth decades against the fifth, sixth, and seventh. Men above 40 are rarely pioneers, rarely the creators in science or in literature. The work of the world has been done by men who had not reached *la crise de quarante ans*. And in our profession wipe out, with but few exceptions, the contributions of men above this age and we remain essentially as we are. Once across this line we teachers and consultants are in constant need of post-graduate study as an antidote against premature

senility. Daily contact with the bright young minds of our associates and assistants, the mental friction of medical societies, and travel are important aids. Would you know the signs by which in man or institution you may recognise old fogeyism? They are three: First, a state of blissful happiness and contentment with things as they are; secondly, a supreme conviction that the condition of other people and other institutions is one of pitiable inferiority; and thirdly, a fear of change, which not alone perplexes but appals.

Conservatism and old fogeyism are totally different things; the motto of the one is "Prove all things and hold fast that which is good," and of the other "Prove nothing but hold fast that which is old." Do not suppose that you have here a monopoly of the article, which is a human, not a national, malady, for we see a very virulent type in America. In its illusiveness and in the disastrous consequences which have often followed its hunting, old fogeyism is a sort of Snark in the medical profession. Before the Boojum, in the form of an entrenched variety, many good men and true have softly and silently vanished away like the beamish nephew of the bellman, sacrificed to intellectual staleness in high places. One of the best correctives is the plan followed at Harvard which compels (?) every teacher to take the Sabbatical year, ensuring in this way rest of the mind if not refreshment. To maintain mental freshness and plasticity requires incessant vigilance; too often, like the dial's hand, it steals from its figure with no pace perceived except by one's friends and they never refer to it. A deep and enduring interest in the manifold problems of medicine and a human interest in the affairs of our brotherhood—if these do not suffice nothing will.

As I stated at the outset, during the past three centuries English students have frequented in turn different countries, drinking deep, deep draughts at the great fountains of learning. Think of the debt we owe to these men and to their foreign masters! Linacre and his successors, Caius, Harvey, and Glisson, brought the new learning from Italy and, moreover, gave to English medicine that smack of culture, that tincture so peculiarly its own. From Holland a succeeding generation drew rich stores of knowledge, and the methods of teaching of the great Boerhaave were quickly adopted by English and by Scotch students. From France came next the new science of Bichat, the new art of Laennec, and the new methods of Louis. To another group the great teachers of Austria contributed accuracy in clinical methods, a zest for the study of special branches and a much-needed, at the time, therapeutic nihilism. The debt of the present generation to Germany can never be paid. Think of the scores who have found inspiration in our common master Virchow; and in the scientific study of disease the Fatherland is still in the van. The great Republic of Medicine knows and has known no national boundaries, and post-graduate study in other lands gives that broad mental outlook and that freedom from the trammels of local prejudice which have ever characterised the true physician.

The course of Empire has opened new fields in which problems new and old have been presented for solution, some of which are of great interest to you "on this side of the water." In any comprehensive survey of the educational field in medicine perhaps the most important single event during the past quarter of a century has been the silent revolution which has taken place in the United States, a revolution which has a direct bearing upon the matter in hand. Everywhere in the schools the entrance requirements have been strengthened, the course of study has been prolonged, and the character of the examinations changed. The hospital equipment has been enormously improved and the clinical facilities have been correspondingly increased. But a still more striking change has been the cultivation of the scientific branches of medicine. 25 years ago physiological laboratories were few and far between; now the output of a score of well-established laboratories supports one of the best journals of physiology in the world. The study of pathology has shown a corresponding growth. The most hopeful feature is a restless discontent which, let us hope, may not be allayed until the revolution is complete in all respects. Meanwhile, to students who wish to have the best that the world offers, let me suggest that the lines of intellectual progress are veering strongly to the West, and I predict that in the twentieth century the young English physicians will find their keenest inspiration in the land of the setting sun.

The Ingleby Lectures

ON

THE COMMONER NEUROSES OF CHILDHOOD, THEIR PATHOLOGY AND TREATMENT.

Delivered at the Mason University College, Birmingham, on June 27th and July 4th, 1900,

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LECTURE II.[1]

Delivered on July 4th.

MR. DEAN AND GENTLEMEN,—Migraine and recurrent paroxysmal headaches which are deficient in the special characteristics that distinguish migraine are common in children, the latter type being particularly frequent. It would be an error to attempt a sharp separation between these two affections, for although the characteristics which mark migraine—viz., the sensory symptoms, the unilateral commencement of the pain, and the sickness and vomiting—are very prominent, yet we find that typical attacks of hemicrania alternate with simple non-migrainous headaches, and that one form may, in any individual sufferer, replace the other in the course of time. Moreover, the vaso-motor symptoms and the fluctuations in the blood pressure which in typical migraine are so pronounced are seldom, if ever, quite absent from recurrent headaches of the simple kind. Precisely the same causes are found to produce both these forms of cephalalgia.

The true character of these headaches is shown by their recurrent character, a slight cause sufficing, in those who are predisposed, to bring on a paroxysm; and it follows that in dealing with cases of this kind we must attack the predisposing factors, if they be accessible to treatment. In the opposite event we must content ourselves with recognising those causes which immediately excite the attacks and instructing the patient to avoid them. Children suffering from this complaint usually show evidence, even in the intervals between the attacks, of being out of health, but in exceptional instances they appear to be in good physical condition. Without going into great detail, the causes which lead to migraine may be stated thus: 1. Heredity, direct or indirect. 2. Overwork, mental or physical. 3. Overstrain of the eyes. 4. Slight injuries. 5. Metallic intoxication, tobacco intoxication, and alcoholic intoxication. 6. Depressed general health arising from either (1) previous disease, (2) respiratory intoxication, (3) disorders of the alimentary tract, or (4) unsuitable diet. 7. Indigestion and constipation without evident impairment of the general health. It will be at once seen that no definite line severs the predisposing from the exciting causes; for in an individual who is led to the verge of migraine by, say, overwork at school a slight extra amount of work will precipitate an attack.

Now, if we consider the toxæmic conditions which predispose to these headaches we are struck by the prevalence of those which arise from unsuitable diet or from other disorders of the alimentary canal. Very often one can elicit a history of constipation, and this or an account of irregularity of the bowels will generally direct us straight to the cause of the trouble. Then we shall on inquiry often be confronted with an account of most unsuitable feeding; the child either has its meals irregularly or they consist of materials quite unfit for its consumption, and very usually the diet is faulty in both these particulars. Even a short experience will convince any observer that in these two conditions, constipation and faulty feeding, are founded a large number of cases of migraine. There may be, on the other hand, a state of catarrh of the gastro-intestinal tract which is not due to errors of diet or constipation, but which results from infective disease. Measles and whooping-cough

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are particularly liable to leave behind them such a condition. Infective diseases may also lead to migraine by simple enfeebling of the general health without there being any evidence that the alimentary canal is specially affected, and where scarlet fever has been the forerunner of recurrent paroxysmal headaches one should be careful to exclude nephritis, which is often overlooked and may first show its presence by these attacks.

A not uncommon cause of migraine and the related headaches is the respiration of air which is contaminated by repeated breathing, and in cases where careful inquiry fails to elicit alimentary disorders or the history of an infective disease, insufficient ventilation should be thoroughly looked for. That the effect is produced rather by the poisonous material contained in the air than by deficient oxygenation of the blood is shown by the comparative rareness of migraine or paroxysmal headache in those who suffer from cyanosis, the result of chronic cardiac or pulmonary disease. It has been remarked that patients suffering from migraine usually bear evidence of being out of health; but even where the cause is a toxic one this does not hold true universally, and although in the majority of these cases we notice the languor of expression, the coated tongue, and the vascular stigmata, yet the child may look perfectly well. In such cases there is often excessive indicanuria which will guide one to the cause of the trouble. Another feature of these toxæmic patients is that their headaches generally begin in the morning, either before rising or soon after, and the reason of this is the comparative inactivity of the kidneys during sleep and the consequent accumulation of toxic materials in the blood during the night. Where fatigue or overwork bring on the paroxysms, they occur, on the other hand, most frequently during the latter part of the day. Thus the time of occurence of the seizures may help us to some degree in recognising the cause of attacks.

I have only a word to say on the subject of heredity, and that refers to cases in which there is evidence of a gouty inheritance. This means that the tissues are inclined to irregular metabolism even when they are supplied with food which is suitable to children who are free from this tendency. In such cases, therefore, successful preventative treatment will lie in regulation of the diet till it suits the individual.

Epilepsy.—Of the neuroses under consideration epilepsy is the most serious, owing to its great frequency and the difficulty of treating it when the disease has lasted any considerable time, and also in consequence of the dangers which the attacks bring with them. The remarks which I have to make shall not apply to those epilepsies which are produced by gross cerebral disease, nor to those single epileptoid attacks which not infrequently in young children mark the onset of an acute infection.

The main causes of epilepsy may be grouped as follows:—1. Heredity, direct or indirect. 2. Damage to the peripheral nerves, cranial or spinal. 3. Emotion, fright, and shock. 4. Masturbation and retained smegma preputii. 5. Commencing or disturbed menstruation. 6. Congenital syphilis. 7. Uræmia. 8. Alcohol poisoning or lead poisoning. 9. Acute infective diseases. 10. Rickets and teething. 11. Indigestion and gastro-intestinal disorders, including parasitic worms and constipation. It is unnecessary for me to go into detail on each of these points, and I will confine my remarks to the commoner or more important causes.

Emotion.—In children under the age of four years excitement, shock, and fright must be very rare as exciting causes of epilepsy, but in older children this cause is much more frequently operative. It is always necessary, however, to guard against the possible error of assuming this to be the sole cause, for in a number of instances of the disease we shall find that though fright occasioned the first fit, yet one of the predisposing factors such as, e.g., indigestion, was at work long before the fright occurred.

Masturbation.—Masturbation and other irritation of the external genitals is by most authors given as a cause of epilepsy, and I have myself met with a good many instances in which this appeared to be the case. I think, however, that masturbation is a rare cause in boys, and although I have no doubt that it may be effective in producing epilepsy in girls I have never seen a case which could be accepted as satisfactory evidence on the point. Even in boys who masturbate or who suffer from adherent prepuce with retained smegma —which sometimes smells very offensively—and who are the subjects of epilepsy, there have generally been, in my experience, other factors which could not be neglected in the endeavour to get at the true cause of the attacks. In order to illustrate this I will mention a case—that of a boy aged 12 years, of pleasant, frank, intelligent manner, but with a sallow complexion and rather thin and suffering from constipation, who had had several epileptic attacks, two of which were clearly associated with a quantity of indigestible food, and one of which was provoked by want of food beyond the usual interval, coupled with excitement and subsequent overeating. He was subject to irregularity in his meals and to injudicious feeding. He also had a prepuce which was permanently drawn forward and which concealed a good deal of retained smegma; but there was no offensive smell. It was denied that he masturbated, but the father's attention was drawn to the necessity of being on the watch for the vice. Stricter diet and general hygiene and moderate purgation were prescribed. Some weeks later the patient had another seizure and by this time the father had found out that the boy masturbated and that he was troubled with precocious sexual feelings of which he had quite willingly told his father on straightforward questioning. He was circumcised and for many months after that he had been free from seizures. Now, I shall presently have to point out the great importance which in my opinion attaches to digestive disturbances, more particularly as a predisposing cause for epilepsy, and I feel disinclined to overlook the very evident disorder of the alimentary tract which here existed. There was the constipation and the habitual irregularity of the diet both as regards time and quality of the food. On the other hand, there was masturbation, which was probably excited, like the precocious feelings, by the constant irritation to which the glans penis was subjected by the retained secretion. In the light of my present experience I would interpret the case in the following way. A predisposition of the cerebral centres was set up by the prolonged disorder of digestion, and in this state the brain was easily incited to an epileptic discharge by the stimulus of masturbation or at other times by the stimulus of an extra indigestible meal. One other case has been brought to my notice which is very parallel to that just cited. In this latter patient the considerable size of the external genitals contrasted strongly with the generally poor state of bodily development, whilst, as in the first case, the mind was active and bright. It is also worth considering whether in these two boys the immediate cause of the fits may not have been the mental excitement which the masturbation produced. I know of cases—very rare ones, certainly, but still they occur—in which the act of copulation produces in women a state of frenzy or a condition in which they act precisely as do sufferers from masked epilepsy (epilepsia larvata)—i.e., they carry out complicated acts without any evident purpose and without being in the least conscious of them at the time or afterwards. I do not know whether these occurrences happen only in women who are otherwise epileptic or not, but it is this point which has suggested to me the question as regards the excitant of the seizures in the boys just mentioned.

Menstruation.—The incidence of menstruation and the disturbances of this function in young girls are frequently blamed as exciting causes of epilepsy—and probably with justice, for it is undeniable that in many women the commencement of the fits dates from the establishment of the menstrual function. Here, again, it is not quite clear whether the effect is produced in a reflex manner or by the working of the new function upon the emotions. Possibly these two mechanisms act together. My own experience among the women at the infirmary suffering from long-continued epilepsy has shown me, rather contrary to my expectation but in agreement with the experience of others, that the fits are comparatively rarely aggravated at the menstrual periods, and in fact in the majority of these sufferers menstruation had no apparent influence either on the number or the severity of the seizures.

Rickets and teething.—These two causes are taken together because they so frequently co-exist and because in cases where they are jointly present it is difficult to gauge the true importance of each. They may, however, also exist separately. Teething may lead to epileptic fits by means of local irritation and reflex reaction. This will, of course, only occur in those children whose nervous centres are already susceptible to the epileptic discharges either through inherited weakness or through disease, and one of the diseases which is most frequently met with in this connexion is rickets. Now, we know rickets to be a disorder of metabolism and nutrition, and the central nerve-tissues must share in this disorder, with the consequence that

disturbance of their function is brought about; but it is easy to trace rickets a step further back, and we may say with confidence that the cause of rickets lies primarily in faulty diet or in faulty digestion. Rickets, therefore, comes under the more comprehensive heading of diseases of digestion, of which great class of epileptic factors we may say that rickets is a well-defined constituent.

Digestive disturbances.—Tænia, round-worms, and thread-worms may be associated with epilepsy, and I have met with each of these three causes. As before remarked, these worms never inhabit the intestine for long without producing some change in the mucosa of the gut. Very possibly in many cases a diseased state of the intestinal mucosa precedes, and renders possible, the lodgment of the worms. The intestinal change which we generally find is a chronic catarrh, in which thick masses of greyish-white mucus, stiff and difficult to remove, lie on the surface of the mucous membrane, often hiding the worms from view. By degrees, in long-continued cases, the inflammation ends in the formation of cicatrical tissue and thickening of the walls of the gut. The inflamed and altered intestine must be changed both as regards the condition of its secretion and as regards its powers of absorption. It is apparent, therefore, that besides the local presence of the worms there is an organic change in the intestine which may, if extensive, affect the absorption of food-stuffs, and which, even if of no great extent, may lead to interference with the regular course of digestion and to the formation of irregular by-products. These if absorbed will certainly not have the same effect on tissues as healthy food, but will act on them in a toxic manner. In view of the conditions just described one will certainly hesitate to explain the epileptic fits produced by intestinal worms as due to mere reflex irritation.

There are one or two further points of interest in connexion with this subject. It is said, for instance, that threadworms are comparatively rarely found to be the cause of epilepsy. This may be because they escape observation. Not very long ago there was under my care a little girl, aged eight years, who had minor seizures in a strong degree. Inspection of the stools revealed no worms for a week, although the bowels were quite freely moved every day. At the end of a week, however, a good number of threadworms were discovered in the dejecta and the association of the parasites with the seizures was thus established. The worms are therefore apt under some circumstances to escape the notice of even a trained nurse, and much more of an unobservant mother, for a considerable period; or they may be voided per anum, not continuously "with every stool," but at intervals which extend to several days. These are points worth considering when one bears in mind the somewhat severe changes which worms are apt to produce in the intestine and the great frequency with which they are associated with epilepsy. Again, epilepsy produced by worms may be unilateral in distribution, the convulsions not only commencing on one side of the body but remaining limited to that side throughout the whole course of the seizure. The same point may be observed in certain cases of epilepsy produced by overloading of the intestines, of which I shall presently give an instance. The fact is generally recognised that epilepsy caused by intestinal worms is difficult to cure even when the parasites are completely removed by proper anthelmintic treatment. There is, of course, the fallacy which has just been illustrated of the continued presence of threadworms without their being passed or recognised in the fæces, and one may be easily misled into the idea that the parasites have been successfully removed. But even when the intruders have been really got rid of the seizures are apt to continue from a persistence of a morbid condition of the intestinal mucosa which is associated with their presence. There is another reason for the continuation of the seizures—namely, the morbid habit of the nerve-centres, which once acquired is only to be overcome by prolonged treatment, but this point applies to all epilepsies whatever may be their immediate and remote causes.

There are, however, disorders of the gastro-intestinal tract, particularly of the intestine as distinguished from the stomach, other than those set up by worms, which are very frequently both the predisposing and the direct causes of epilepsy. Both in children and in adults instances of the disease meet us for which we fail to find a satisfactory explanation as to either the predisposing factor or the exciting cause. In adult males, in whom these causes are far from infrequent, there is strong evidence to show that chronic alcoholism, even when unaccompanied by kidney disease, is the predisposing factor, whilst the discharge may be produced by an extra dose of the alcoholic poison. In other cases where drink can be excluded I think strongly that the reason for the epilepsy must be sought for, and would be found, in the digestive tract. Unsuitable ingesta which act as poison, like alcohol, may be the provokers, and it is by no means necessary that they should in every instance be such well-recognised toxic agents as alcohol is. In young adolescents and particularly in children it would appear that an excessive meat diet is quite capable of putting the nervous system into what may be called the state of epileptic tension. In other patients there is catarrh of the intestine which, when it fails to attract by any marked signs the attention of the sufferer himself or of the mother, is not complained of and requires skilful questioning to be revealed. Beyond such patients whose appearance does not help us in forming a conclusion as to the cause of the epilepsy there are, however, those of another class who bear marks of their gastro-intestinal disorder which, though plain enough when attention is directed to them, are nevertheless not infrequently overlooked. I have spoken before when dealing with chorea of the frequency of certain facial signs, such as a dull, muddy complexion and furred tongue, as indicating an habitual toxæmia arising from the bowels. It is quite remarkable how often we are confronted with this complex of signs in patients whose complaint is about their epileptic fits; indeed, this state of affairs is so frequent that I have often wondered that no greater stress is laid upon the conjunction. The appearances in question may be briefly described here, since they were only touched upon under the heading of chorea. In pronounced instances the complexion is muddy, the eyes and expression are dull, and dark rings may be found round the orbits. There is a tendency to erythematous, patchy flushing of the skin of the face, neck, and chest. The small vessels on the cheeks are dilated and form vascular stigmata, such as are seen in chronic alcoholic patients and others in whom the degeneration of the blood-vessels is commencing. Often there is a tendency to acne and comedones, when the skin is often greasy-looking and secretes an excess of sebaceous material, especially about the nose. The tongue is usually coated or furred in a greater or smaller degree and the patient suffers from a bad taste, particularly in the morning. The breath frequently has a disagreeable acrid odour which at times may be very offensive—a condition which is in no way connected with any local process in the mouth. Such sufferers are often big and stout and frequently present a coarse appearance, due largely to the acne and seborrhœa. In many of them the appetite is great and even voracious. They are usually constipated, though the history of constipation is often difficult to elicit from them, for it seems as though a moderate degree of constipation becomes so much a part of a patient's life that it no longer presents itself as anything abnormal. The bowels are frequently asserted to be "quite regular" when, as a fact, they are moved every second or third day only; and it is necessary for the physician to assure himself of the physical state of the dejecta before he is justified in accepting the statement of the patient or that of the patient's mother, that there is nothing the matter with the bowels. Particularly I would lay stress on the misleading fact of the bowels being opened twice or three times a day. This generally means not that the stools are loose or copious, but that each evacuation is small, hard, and scanty, so that at each motion only a small portion of the fæcal matter lying in the sigmoid and rectum is removed, and that the true state consequently is one of constipation. On the other hand, it must not be forgotten that true diarrhœa may exist with such a disorder of the intestine and with those facial signs that I have just described. Diarrhœa, however, in my experience is very rare as compared with constipation.

In all probability the constipated condition predisposes to epilepsy by leading to a toxæmia, and not by reflex irritation. For in the first place we have the facial signs and the condition of the tongue pointing to toxæmia, and in the second place it strikes me that one very rarely encounters epilepsy when there is a mere overloading of the stomach, a condition which nevertheless has a strong tendency to set up reflex action. I am not aware of any case in which an overcharged stomach, while the food is still in that viscus, has given rise to an epileptic seizure; and in those cases in which an indigestible meal is blamed, and justly blamed, for the attack the latter does not usually

occur until at least 12 hours after the meal in question, and we know that in children in such cases an enema will often remove pieces of undigested food from the rectum. Now, from the stomach comparatively little, if any, absorption takes place, and the facts just mentioned appear to bear out the suggestion that it is only when the absorption of products of such an indigestible meal is commenced that the fits occur. This of course applies to the exciting cause of the seizure; the predisposing cause is, however, much more important and is *a fortiori* more probably a toxæmia than a state of reflex irritation.

The foundation of digestive disturbances which ultimately become complicated with epilepsy is very commonly laid at school. Thus I have seen many cases of epilepsy in young women who gave a distinct history of severe indigestion commencing while they were at boarding-schools and who never entirely recovered from their indigestion. These patients all showed in addition to their dyspeptic symptoms some evidences of auto-intoxication and with hardly an exception admitted suffering from constipation.

It is to me a remarkable fact that epilepsy is but rarely combined with anæmia. Thus out of 32 cases of women and children in whom epilepsy was connected with marked signs of digestive disorders one only showed anæmia to a degree which was recognisable by the pallor of the conjunctiva and I have not seen a single instance of epilepsy associated with typical chlorosis. When we remember how constantly chlorosis and other anæmias are combined with, and probably are due to, irregular digestion and constipation this exemption of chlorotics is certainly notable and is in want of a plausible explanation. It may of course be that the particular toxic substances which lead to anæmia are without influence on the nervous system and that, *vice versâ*, those that have a profound effect upon the latter leave the blood-forming tissues unaffected, and until we are enabled to isolate or to discriminate by their toxic effects between the several deleterious bodies which are in different circumstances produced in the alimentary canal, this is the only explanation which I can suggest.

There is nothing special in the form which the epileptic attacks assume when they are due to gastro-intestinal intoxication. Major and minor attacks occur with equal frequency and epilepsia larvata is not uncommon; it may even occur that the convulsions so produced are confined to one side of the body after the type of Jacksonian epilepsy. Thus I have seen an infant who on two successive occasions was brought to hospital suffering from marked unilateral convulsions limited to one side. On each occasion grossly unsuitable food proved to be the cause of the seizures and undigested masses were removed by enema from the rectum. Watching this child in its convulsions one would certainly have said that they were due to coarse brain disease, and although I have never seen another case so clear in character, this one seems worth noting, since instances of this kind are probably not altogether exceptional and are apt to mislead one as to the cause of the fit. The time at which the seizures take place is not characteristic in gastro-intestinal epilepsies, for the fits appear with about equal frequency in the day and in the night, and in several cases I have noted that they take place in the early morning, either while the patient is still in bed or during the process of dressing. It is noteworthy that in a considerable proportion of the gastro-intestinal cases no evidence of any hereditary tendency can be obtained.

I trust that I have made it clear that a great proportion of the epilepsies met with in everyday practice are the result of chronic toxæmia arising from the alimentary tract, and that this same auto-intoxication is the true factor in several other conditions which are universally recognised as predisposing causes of epilepsy—as, e.g., intestinal worms and rickets. It is necessary to emphasise the predisposing as contrasted with the exciting cause to which the first or any subsequent fit is attributed. It is not possible to classify the causes of epilepsy into two distinct groups—pre-disposing and exciting—without straining the facts, but in any individual case of the disease we can discern these two factors and the predisposing cause remains the same, whereas the immediate excitants of the fits may vary, and will be, now fatigue, then excitement, or again injury or pain.

Pathology.—The diseases under consideration have, then, the following etiological points in common. They are produced by a group of emotional causes and, on the other hand, by a group of toxic causes, together with each of which hereditary predisposition has an important influence. The toxæmic element is more effective than the emotional in all these maladies excepting saltatory spasm. The further remarks which I have to make on the pathology of these disorders shall be limited to the subject of self-intoxication from the alimentary canal, which has been shown to be a factor of first importance.

We may conveniently divide the gastro-intestinal disorders which lead to toxæmia as follows:—

1. *Excessive amount of food.*—Over-eating has a great effect in setting up disorder of the alimentary canal. The habit is a common one among the children of the lower classes, but it is by no means confined to them. We may explain its action as follows. Normally the glands which produce the digestive juices secrete them in quantities which are capable of dealing with a certain volume of food. Habitual excess of food or too frequent meals will no doubt stimulate the glands to yield a proportionate increase of their secretion for the time being, but such an over-strain, if long continued, is apt to end in glandular inadequacy and consequent incomplete digestion. The incomplete digestive products may be absorbed; or in the absence of a sufficient amount of the digestive fluids bacterial decomposition of the intestinal contents takes place, and the products of the same are taken up by the blood-vessels and lacteals.

2. *Unsuitable food.*—Food unsuitable either to the age of the patient or to his individual digestive capacity is likewise often the cause of those gastro-intestinal conditions which are found associated with the neuroses, and very frequently such dietary errors signalise themselves by producing the facial appearances which have been described. Reference has already been made to the fact that an excess of meat food—and probably the same would hold good of excess of any other proteid material—is apt to be associated both with dreaming, enuresis nocturna, and epilepsy, and I think that when a fault is discovered in the nature of the food it is the proteid constituents which are usually to blame.

3. *A catarrhal condition of the stomach or of the small intestine.*—This may arise from various causes, as, for example, dietary errors, intestinal worms, or infective diseases. This condition may be accompanied by diarrhœa, or, more commonly, by constipation. In speaking of the local effect of intestinal worms I have already detailed the manner in which such catarrhs act and how they may long outlast their original cause.

4. *Constipation.*—Constipation, arising from catarrh of the intestine or faulty diet or from mere habit and encouraged by neglect is undoubtedly one of the most common predisposing causes of all the neuroses here considered, and its effect is produced partly by the delayed elimination of fæcal matter which therefore has a chance of being re-absorbed by the intestine and partly by the encouragement which it is shown that bacterial growth within the intestine receives when the fæces are retained. In the absence of a verbal admission by the patient of any of these digestive disorders we may observe the signs which have been fully described and the significance of which as an index of auto-intoxication has been pointed out, or we may find indicanuria. Indican is derived from indol, which latter is formed in the intestine by the bacterial decomposition of albuminous substances. A very little indican is commonly present even in the urines of healthy persons, but a considerable excess of the same, such as I show you in these specimens, is always accompanied by disturbed general health. We may, therefore, say that excess of indican in the urine is always associated with toxæmia, and this toxæmia arises (with rare exceptions, in which the source is decomposing pus) from the intestinal canal. Indol itself may possibly be toxic, in view of its origin through bacterial action and of the fact that it is unlikely to be a nutrient substance, for all the familiar organic food stuffs contain oxygen, and indol is deficient in this element. Indol is formed from the nitrogenous food stuffs and is so far the only decomposition product of intestinal origin which we have the means of detecting in the urine. But it is quite probable that analogous products are formed from both carbohydrate and fatty articles of diet under the influence of constipation or of intestinal catarrh. If this be so we ought to meet with bodies of the constitution of the alcohols and of the fatty acids, but I am not aware that any such have been certainty detected in the urine, and it is possible that they undergo such changes before they are finally excreted with that fluid as to be no longer recognisable, or that they are completely oxidised in the blood and excreted from the lungs.

Excepting the sign of indicanuria we have no chemical test which proves that auto-intoxication from the alimentary canal is in progress. There is, to be sure, the fact, first described in detail by Bouchard, of the toxic action of the urine, and we might expect to find in the case of self-intoxications special results following the injection of such a patient's urine into the blood of an animal. But so far as I am aware the poisonous effects of the urine of healthy persons have hitherto proved to be identical in nature with those obtained with urine from patients suffering from blood-poisoning, though less in degree, and the only exception to this rule appears to occur when the urines of certain infective diseases—e.g., pneumonia—are employed. This physiological test would, however, not be applicable to the bedside, even if it should in the end prove useful in detecting special poisons in special gastro-intestinal disorders. A point to which I have previously drawn attention is the prominence of the toxæmic symptoms of malaria, languor, and sometimes vertigo, in the early morning, and in this connexion it is highly interesting to note one result of Bouchard's experiments—viz., that the urine secreted during the night is, though more concentrated, materially less toxic than that eliminated during the hours of mental and bodily activity.

TREATMENT.

In view of so many common points in the production of these neuroses their treatment must possess certain common features which shall first be dealt with.

From the stress which has been laid upon disorders of digestion and faulty diet as a cause of nearly all these diseases it follows that correction of dietary errors is one of the main points requiring attention. In the majority of cases in which the feeding is at fault it is advisable to cut down the amount of meat which the child consumes. Meat once a day will nearly always be sufficient, and that once should be at dinner-time in the middle of the day while there are still some hours of muscular activity before the child. It is seldom necessary or advisable to remove meat altogether from the dietary, for it is nearly always an excessive quantity of meat which leads to the trouble, not meat in a small or moderate amount. So long as the meat is good there is, I believe, not much difference between beef, mutton, rabbit, fowl, game, &c., but fish may with advantage be substituted for butcher's meat. Light puddings and green vegetables may be given and potatoes in moderation. In fact, it is not so much a question of prohibiting any article of diet as of regulating the amount. In many children the entire bulk of food requires reducing. In severe cases of enuresis it is sometimes (as in the case which I have quoted) advisable to stop meat altogether for a period and then to allow it again in a very small quantity. Sufficient mastication and moderate rest after meals should be insisted on, as they greatly help digestion, and the child should not leave the house after breakfast until the bowels have been opened.

It is plain, also, that in most cases the action of the bowels demands attention, since the prevention of an auto-intoxication from the intestine depends firstly on regular and sufficient defæcation. As cathartics the saline purgatives are invaluable, at all events to begin the treatment with, and since it is advisable not to give drugs more often than necessary they are best administered in the shape of a single dose of mixed sulphates of soda and magnesia one hour before breakfast, or in a smaller dose last thing at night. Any of the natural aperient waters may be substituted for this mixture. Calomel (or calomel combined with a small quantity of colocynth and rhubarb) is also extremely valuable in this class of cases. Senna, aloes, and other drugs which act mainly on the lower intestine, are less indicated, for it appears that the groups of aperients first named act largely by stimulating the flow of bile and by thus helping the liver to eliminate whatever toxic materials it has removed from the portal blood stream. Whichever drug be given the object to be attained is one large stool, of porridge-like constituency, to be passed preferably before or shortly after breakfast. Again, we want to convert habitual irregularity of the bowels into habitual regularity, and to this end it is necessary to give, not an occasional purge when the bowels have been obstinate for a day or two, but a regular course of this daily treatment, extending over three or four weeks, to be followed by a gradual diminution of the dose, administered first on alternate days, then at longer intervals. This combined with the dietary measures prescribed will usually be followed by complete success in children, and any excess of indican, if present at the onset, usually disappears under these therapeutic measures, but sometimes it continues to be present in considerable quantity, showing that in spite of the purgation an excess of microbial products is absorbed. In such cases the so-called intestinal antiseptics naturally suggest themselves, the chief of which are sulpho-carbolate of soda, salol, phenol, mercurial salts, charcoal, and possibly arsenic. All these, excepting phenol and arsenic, I have tried, and though each has proved useful I cannot say that any one of them can be relied upon to remove the trouble entirely and in all cases. Those which have in my hands proved the most successful are sulpho-carbolate of soda and charcoal. The first is, however, very apt to give rise to headache and must therefore be carefully watched, and on the whole I give the preference to vegetable charcoal given in 30 grain doses twice daily. Perchloride of mercury, the most powerful of antiseptics, has not in my experience had the desired effect—at least, in such doses as I have cared to give to children. Arsenic in comparatively large doses I have not yet tested in this connexion.

Tonics may be of use in certain of these neurotic conditions where there is enfeebled general health due to previous disease, but their utility is far less than that of the remedies which act upon the intestines. They do, however, improve the appetite and probably hasten the general metabolism, and they may therefore be usefully combined with the intestinal drugs. Their employment alone, however, is to be deprecated where there is any active auto-intoxication, for in such cases they do not strike at the root of the trouble and only delay improvement by deferring the employment of the proper remedies.

In conjunction with the measures which I have mentioned above to be applied in all those cases in which self-intoxication is the main cause each one of the neuroses requires some special treatment.

Chorea.—Besides seclusion, darkness, and quiet, undoubtedly the most effective treatment is that by arsenic in doses of about 15 minims of Fowler's solution twice or three times daily, as advised by Dr. Murray. The success of this method is quite another thing than that attained with arsenic in small doses, and is much more quickly gained. Some evidences of poisoning are apt to arise under this medication, notably nausea and vomiting, and when these occur the best thing is to diminish the dose, not to stop the drug.

Enuresis nocturna.—This may be successfully treated, as a rule, by giving bromide of potassium, with either tincture of belladonna or of hyoscyamus, as a nightly dose. It is, moreover, well to administer some alkali, such as citrate of potash, in order to diminish the acidity of the urine, which excessive acid reaction is itself of irritating effect. Of course, should bacteriuria be present it is necessary to locate the cause of the same and to deal with it.

Migraine.—Attacks of migraine which depend upon auto-intoxication may, I believe, be successfully cut short by the administration of a smart emetic, and I have known several adults who have asserted that this course more certainly relieved the attack than any other. Of course, antipyrin sometimes succeeds in these cases, but by no means always. It is not clear how emetics produce their effect, but it may be that some of the toxic material is excreted from the blood by the gastric mucous membrane and re-absorbed, in which case an emetic will remove it. On the other hand, it is possible that the act of vomiting stops the headache by the violent stimulus which it affords to the nervous system. I do not think that emetics are ever useful in those migrainous attacks which result from prolonged overwork of the body or mind.

Tetany.—For the spasm of tetany the bromides, so far as my experience goes, are by far the most efficient remedies when employed together with the proper treatment for the catarrh of the respiratory or intestinal tracts. Galvanisation is recommended, but I have never had occasion to employ this measure, and I cannot help thinking that in most cases it is unnecessary. Quiet and darkness are strong aids to the successful treatment of this affection.

Dreaming and nightmare.—For these symptoms no treatment is required beyond that which deals with the primary cause.

Epilepsy.—Undoubtedly the best drugs to employ in epilepsy are the bromides. I am accustomed to give equal quantities of the potassium and ammonium bromide, the total dose to be determined by the result upon the seizures. This combination tends, I think, to resist the depression

which is apt to ensue when the potassium bromide alone is used for long, and for long these drugs must be administered if any permanent good is to be done. They probably act directly upon the cerebral centres. As I had occasion to point out before, epileptic seizures are very apt to continue even when the predisposing cause has apparently been removed, and their continuance is no doubt due to the fact that a morbid habit of action is acquired by the nerve-structures concerned in the convulsive discharge, a habit which is favoured by every seizure. Taken in hand early and treated with perseverance epilepsy is by no means so hopeless a malady in children as one might be led to believe by seeing it in the adult chronic epileptic. Should intestinal worms appear as the cause of this disease, and the proper anthelmintic remedies be administered with apparent success, one must nevertheless bear in mind the obstinacy of these parasites and the fact that they are generally present in numbers. A child can certainly not be regarded as being free from the intruders until the stool has been repeatedly found clear of the ova, and in the case of tapeworms the head must be found. For oxyuris vermicularis I am in the habit of prescribing infusion of quassia internally, coupled with mild purgatives. For tænia male fern is the most successful drug, provided that it be given when the intestines are empty through fasting and that it be helped by a cathartic remedy; but whichever parasite it may be the altered condition of the intestinal mucous membrane will have to be remembered, and this condition will require careful dieting, and possibly saline purgatives, to be continued over a considerable period of time.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following is the prize list for the summer session, 1900:—Barker Anatomical Prize, £21: J. F. Peart. Carmichael Scholarship, £15: A. Charles. Gold and Silver Medals in Operative Surgery: gold medal, E. A. W. Henley; and silver medals, F. W. Lamb and A. H. B. Hartford. Practical Histology: R. W. Burkitt, first prize (£3) and medal; and R. G. Allen, second prize (£1) and certificate. Practical Chemistry: Miss J. Bell and A. N. Crawford (equal), first prize (£2) and medals. Public Health and Forensic Medicine: J. F. L. Keegan, first prize (£3) and medal; and Miss H. A. Hall and W. R. Meredith (equal), second prizes (£1) and certificates. Materia Medica: A. T. Mulhall, first prize (£3) and medal; and J. R. MacManus, second prize (£1) and certificate. Practical Pharmacy: J. J. Connolly, first prize (£3) and medal; and Miss L. Smith, second prize (£1) and certificate. Biology: B. H. Peters, first prize (£3) and medal; and J. J. Connolly, second prize (£1) and certificate. The preliminary examination for the next session will be held on Sept. 26th and 27th. Regulations and students' guide are now ready.

THE BRISTOL ROYAL INFIRMARY.—The accommodation for nurses at the Bristol Royal Infirmary having been found inadequate the home which was fitted up for some of the nurses in 1886 and enlarged in 1896 has been again considerably enlarged and improved. The entire structure now contains bedroom accommodation for 93 nurses. There are also recreation-rooms, reading-rooms, bath-rooms, &c. The whole of the building is lighted by electricity. By the acquisition of an adjoining piece of ground a garden has been made which is sufficiently large to provide a tennis court and other means of outdoor recreation. The cost of the new building, including an extension of site and furnishing, has been about £8600. The expense of furnishing has been defrayed by the carnival which was held at the Zoological Gardens, Clifton, in 1899, and the committee hope that the residents of Bristol, recognising the need of reasonable comfort for the nurses, will subscribe the requisite funds.

THE NOTIFICATION OF MEASLES.—At the meeting of the Ottery St. Mary District Council held on July 6th one of the members proposed that measles should be made a notifiable disease, but after discussion it was determined to postpone further consideration of the matter for three months and in the meantime to obtain the opinion of the Local Government Board upon the subject.—At the meeting of the New Quay (Cornwall) District Council held on July 7th it was decided to continue the inclusion of measles as a notifiable disease, but that in future the notification should be 1*s.* instead of 2*s.* 6*d.*, the medical men of New Quay having agreed to such a reduction.

The Croonian Lectures

ON

THE DEGENERATION OF THE NEURONE.

Delivered before the Royal College of Physicians of London on June 19th, 21st, 26th, and 28th, 1900,

BY FREDERICK W. MOTT, M.D. LOND., F.R.S.,

PATHOLOGIST TO THE LONDON COUNTY ASYLUMS; PHYSICIAN-IN-CHARGE OF OUT-PATIENTS, CHARING-CROSS HOSPITAL.

LECTURE IV.[1]

Delivered on June 28th, 1900.

SOME CHRONIC TOXIC CONDITIONS.

MR. PRESIDENT AND GENTLEMEN,—So far I have dealt with experiences relating to poisons producing acute or subacute changes in the nerve-cells. I shall now refer to the effects of chronic poisoning of the system, especially in reference to two factors which are the most potent, the most prevalent, and the most persistent poisons in the production of the degeneration of the neurone and which frequently act in combination, affecting not only the nervous system of the individual but also of the offspring. Such are alcohol and syphilis.

THE CLOSE RELATIONSHIP IN THE ETIOLOGY AND PATHOLOGY OF TABES AND GENERAL PARALYSIS.

Syphilis is the best example of a poison probably, though not proved to be, of microbial origin which has a selective influence upon the nervous system with a remote effect; it is the most important factor in the production of two progressive degenerations of the nervous system, one affecting especially the exogenous afferent spinal neurones—namely, locomotor ataxy; the other affecting the association systems of neurones of the cerebral hemispheres, especially of the frontal and central convolutions—namely, general paralysis of the insane. A striking instance of the selective action of the syphilitic poison is shown in the fact, first pointed out by Sir William Gowers, that only in persons affected with acquired or inherited syphilis is the symptom known as the Argyll-Robertson pupil found; indeed, it is sometimes the only symptom. Seeing that this is the most common objective phenomenon in the two diseases mentioned it strengthens the presumption, based on experience, that the syphilitic poison is the cause of the disease in the majority of instances. It is the opinion of many authorities—and I must say that my experience supports it—that locomotor ataxy and general paralysis are one and the same morbid process, affecting different parts of the nervous system. They are, in my opinion, both a primary and progressive decay of the nervous elements and are etiologically, clinically, and pathologically very closely related. At a discussion held at the Pathological Society of London I supported the view that tabes and general paralysis are one and the same disease affecting different parts of the nervous system. It was asked if this be so, how do you explain the fact that in general paralysis it is the brain, and especially one particular part, which is affected, while in locomotor ataxy it is the cord? Let us consider the effects of poisons like alcohol, lead, ergot, lathyrus, and diseased maize (pellagra). They may produce both peripheral nerve and cord changes together with brain changes in the same individual. It is the individual, his occupation, and habits which determine the seat of the morbid process. In some cases, however, the cord symptoms, on the one hand, predominate and the brain symptoms may be slight, or even absent; on the other hand—and these are the cases of lead and alcoholic poisoning which come into the asylums and are not seen in the hospitals—we have the brain symptoms predominant and the paralytic symptoms often less defined, overshadowed by the brain affection or even absent. So it is with general paralysis. Cases come into the hospitals with Argyll-Robertson pupils, marked paresis, and speech affection, but with the mental symptoms only comparatively slightly developed. Likewise

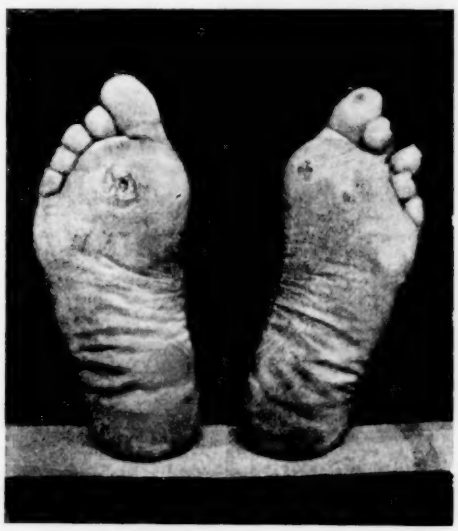
[1] Lectures I., II., and III. were published in THE LANCET of June 23rd and 30th, and July 7th, 1900, respectively.

numerous cases of tabes attend the hospitals for a considerable time and then marked mental symptoms develop, when the case is certified as tabetic general paralysis. In all these degenerative diseases we have more than one factor in operation, and I quite agree with Edinger in his opinion that *stress* will determine the initial localisation of the degenerative process. I do not know that we can learn very much about these primary degenerations from experiments upon animals. However, much valuable knowledge undoubtedly has been obtained by the effects of poisons in producing acute or subacute degeneration of the neurones. Certainly animals have not been inoculated with syphilis. Tuczek, who first described the changes in the nervous system in ergotism and pellagra, was unable to produce these degenerative processes in animals by long-continued feeding with diseased rye, nor have other experimenters been successful with injection of ergotin and sclerotic acid. Likewise, alcohol and lead administered to animals do not produce the characteristic clinical and pathological conditions found in man. Moreover, many other poisons, the products of micro-organisms, produce different effects in man to those produced in animals. The close association of tabes and general paralysis is to my mind clearly shown by the fact that there are a considerable number of cases in which it is difficult to say whether they should be classed from their clinical symptoms and morbid changes found post mortem as tabes with mental symptoms or as cases of tabetic general paralysis. I have seen cases in which the diagnosis of general paralysis has been made because the patients were suffering with mental symptoms indicating that disease—viz., maniacal or melancholic symptoms and delusions associated with ataxy. After a time the mental symptoms have cleared up and the case has then been called tabes. Again, I have frequently seen cases of tabes which begin with all the characteristic phenomena of this disease and then terminate in progressive dementia and paresis, dying in an asylum from general paralysis. Symptoms which are looked upon as characteristic of tabes, such as grey atrophy of the discs, are not at all uncommon in general paralysis (10 per cent.) and I have met even with symmetrical perforating ulcers (Fig. 1) and Charcot's joint. I have recently examined 12 cases of the tabetic form of general paralysis in which the changes in the brain (naked-eye and microscopical) were characteristic of general paralysis and the cords showed the characteristic lesions of tabes. My experience would point to about 10 per cent. of the cases of general paralysis being associated with tabetic cord lesions. The etiological relationship of the two diseases is almost identical; both affections occur usually in the prime of life, are more prevalent among townspeople, affecting men of all grades of society, but as a rule only women of the lower and lower middle class. Again, juvenile general paralysis and juvenile tabes probably occur only in the subjects of congenital syphilis and the sexes are affected with equal frequency. I have met with one case of the latter and 30 cases of the former with 24 post-mortem examinations. In 80 per cent. of the cases of juvenile general paralysis a definite history or signs of syphilis were obtained. A considerable number of cases have now been recorded of married couples being affected with general paralysis. I have recently seen a man who had well-marked signs of syphilis who subsequently died from the tabetic form of general paralysis; his wife, who had healthy children by the first husband and none by this second, is now dying from general paralysis. Dr. T. Buzzard related a similar case at the discussion referred to.

SOME FACTS CONCERNING THE ETIOLOGY AND PATHOLOGY OF GENERAL PARALYSIS.

There are two types among the juvenile general paralytics: (1) in which the syphilitic poison seemed to have produced an arrest or impaired development of the higher centres, so that the child was weak-minded or imbecile; and (2) in which the child was mentally capable, in some cases highly intelligent and active-minded. The cause of the degenerative process in most of these cases seemed to be associated with the increased psychical *activity*, which must of necessity develop after puberty, when new emotions, objects, and ambitions are awakened by the sexual instinct and the struggle for existence. That psychical activity plays a very important part in this disease as affecting adults is clearly shown by the following facts: the sufferers are nearly all townspeople with a quick reaction time, ambitious and energetic, and the first symptom of the disease may be undue mental activity, approaching now and then to that of genius. It might be argued that a large number of these people are from the lowest and least educated classes; still, I am convinced that they belong to the mentally active class. Not only do we find the people affected possess mental activity but also usually sexual proclivity, and it is very difficult to decide whether the increased sexual activity so frequently met with in the early stages of this disease is a cause or an effect. But all forms of mental excitement are associated with fatigue and too often the neurasthenic condition which precedes the more definite symptoms of the organic brain affection leads to alcoholic excesses, and it is often very difficult to decide whether a case is one of *mania à potu* or of general paralysis. The two are frequently combined, and if so the disease runs a more rapid course. The researches of Bonhofer and Trömner have shown that acute degenerative changes may occur in the cortical cells as a result of acute alcoholism; and I have found, and can therefore agree with Jolly, that in cases of alcoholic dementia there exist organic changes affecting the superficial layers of the cortex and causing atrophy of the tangential fibres. It is, then, probable that although alcohol will not of itself produce general paralysis it will materially increase the rapidity of the progress of the disease. Kraft-Ebbing sums up the etiology of this disease in two words—"civilisation" and "syphilisation"; and he brings forward very strong arguments in favour of the important rôle of syphilis. The recent report for the year 1899 by Dr. J. Warnock from the Egyptian Hospital for the Insane entirely upsets this view. He states: "During 1899 57 general paralytics were under care out of a population of 500. The large towns furnished nearly all the cases of this disease, and syphilis was known to be the cause in 29 of the 35 cases admitted. 24 of them were native Egyptians."

FIG. 1.



Why should general paralysis be associated especially with atrophy of the frontal and central convolutions? It has already been pointed out that in these regions venous stasis is most likely to occur. Psychical activity is associated with hyperæmia of the brain and congestion; those portions of the brain in which the mechanical conditions favour this congestion in the most marked degree would be more likely to suffer from the effects of the congestion. The whole cerebrum and spinal cord waste in general paralysis, but certain regions are earlier and more markedly affected than others—viz., the frontal and central convolutions (*vide* Figs. 2, 3, and 4). These are the regions whose veins drain into the longitudinal sinus and in which, therefore, for reasons previously mentioned, congestive stasis is more liable to occur. If it be admitted that owing (in the majority of cases) to the influence of the syphilitic poison the durability of the nervous system has been lowered, increased psychical activity will tend to exhaustion and disturbance

FIG. 2.

FIG. 4.

FIG. 3.

FIG. 5.

FIG. 6.

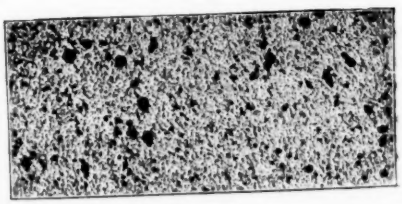


FIG. 7.

of the normal nutritional equilibrium of the neurones. But psychical activity will cause hyperæmia and congestion of the brain, and in regions where there is a tendency to stasis the congestion may persist, especially if it leads to insomnia. A vicious circle becomes established by conditions which tend, on the one hand, to perpetual venous congestion in certain regions, and, on the other hand, to increased excitability of the neurones; these factors mutually interact. It has been argued that in Mohammedan countries where syphilis is rife general paralysis is unknown.

Venous congestion (according to the researches of Waller who has shown that CO_2 increases the excitability of nerve) may lead to hyper-excitability of those regions in which the stasis occurs. Likewise there is probably an impaired supply of arterial blood to the brain for the following reasons. The experiments of François Frank show that excitation of the Rolandic area of the cortex causes contraction of the arterioles and rise of blood-pressure; observations which I have made upon the blood-pressure in general paralysis by Hill's sphygmometer entirely accord with the results obtained by Leonard Hill and Craig. There is a considerable rise in the arterial pressure above the normal and this is increased markedly during the occurrence of seizures, whether congestive or epileptiform. The blue condition of the skin and the coldness of the hands and feet of patients suffering with general paralysis suggest a small amount of blood in the arterial system and a large amount in the venous. Although we find this high arterial pressure there is seldom marked hypertrophy of the left ventricle, and I have found that if a patient has a great number of epileptiform seizures the arterial pressure falls and right heart distension and sometimes a condition of asphyxia arise, with great engorgement of the veins, and death in consequence. The heart muscle in these cases exhibits early and often extensive fatty degeneration, due to a combination of causes—insufficient oxygenation of the blood, auto-intoxication probably from fatigue products, and increased destructive metabolism owing to the much greater resistance to be overcome. Not only the heart but also the striated muscles show this change. I could not find evidence of degeneration of nerves to account for this change, neither do I believe this to be the effective cause, seeing that exactly the same changes in heart, diaphragm, and other striped muscles have been found by me in seven cases of status epilepticus.[2] Some of the latter patients prior to the fits were in perfect health. In connexion with this I may mention that the venous congestion of the brain caused by the status epilepticus produced marked changes in the cells of the cerebral cortex, changes which corresponded with the appearances presented by many of the large pyramidal cells in general paralysis and not unlike those found in experimental anæmia with convulsions. There was great swelling of the cell (œdema), disappearance or disintegration of the Nissl granules, often eccentric position of the nucleus, and dilatation of the peri-neuronal and peri-vascular lymph spaces. Moreover, epilepsy frequently ends in dementia, and we find in such cases atrophy of the tangential super-radial and inter-radial association fibres, a condition which is always found in general paralysis even in the earliest stages before any fits occur. Dr. George Watson, who has looked over a large number of my specimens, reports that in 20 cases which he has examined he found the tangential fibres, the super-radial and inter-radial fibres atrophied in all the 16 cases of general paralysis, but that of these 16 none showed any recent change by the Marchi method; consequently we must suppose the atrophy was of some considerable standing, and probably years before the patient comes to an asylum a regressive change has commenced in these latest morphologically-developed structures. Occasionally I have been able to show that the tangential fibres of Broca's convolution are more atrophied on the left than the right side when the left hemisphere has weighed less than the right. The four cases in which he did not find atrophy of the association systems mentioned were primary degenerations of projection systems—viz., two of amyotrophic lateral sclerosis, one of combined sclerosis, and one of universal syphilitic arteritis. In a considerable number of the cases of general paralysis there was recent degeneration of the radial fibres, especially in those cases where there had been epileptiform seizures. The perivascular lymphatics also contained the fatty products of degeneration. We can thus understand that a number of contributory factors may arise to establish a vicious circle which is continually enlarging until a fatal termination occurs. Such factors may not only lead to rapid destruction of the neurones or nervous elements, but by irritation lead to a proliferative formation of the neuroglia cells, and we can account for the ependymal granulations almost invariably met with in this disease by the irritation caused by an altered cerebro-spinal fluid. They are, however, not found exclusively in general paralysis.

[2] Vide Archives of Neurology, p. 493.

GENERAL PARALYSIS A PRIMARY DEGENERATION.

The morbid process in general paralysis has been considered by Mendel and many other authorities to be a primary meningo-encephalitis. I would advance the following reasons for considering it a primary degeneration of the neurone with secondary meningo-encephalitis:—1. Its relation to tabes dorsalis and the probability of its being the same morbid process due to the same cause (syphilis) commencing in a different part of the nervous system. 2. The existence of the Argyll-Robertson pupil in the majority of cases. 3. The existence of grey atrophy of the discs in a number of cases, much more frequent than can be explained by mere coincidence. The last two symptoms cannot be explained except by a primary atrophy. 4. The evidence of a wasting of the whole nervous system, but out of all proportion to the evidences of inflammation affecting some parts more than others. This wasting must be primary in the nervous system and not secondary to bodily disease, for in no cachectic disease or even in starvation do we find extensive wasting take place. 5. The thickening of the pia-arachnoid membrane is proportional to, and corresponds with, the degree and locality of the atrophy; so it is with tabes. 6. In many cases of tabes, especially those with mental symptoms, atrophy of the tangential and super-radial association fibres of the brain are found quite similar to but often in different situations to general paralysis. 7. In diseases with well-marked meningo-encephalitis, about which there can be no dispute that it is primarily an inflammatory process, we do not find this extreme atrophy. In illustration of this I would call attention to two cases of African lethargy which I had the opportunity of examining and of describing[3] for the first time the histological changes in the central nervous system. Throughout the whole central nervous system in both these cases there was evidence of a profound and widespread chronic inflammatory process. The whole of the perivascular lymphatics were choked up with mononuclear leucocytes. The pia-arachnoid membrane was similarly infiltrated, indicating the existence in the cerebro-spinal fluid or blood of an irritant poison the nature of which I was quite unable to discover, although the most painstaking efforts were made by myself and Dr. Bulloch, both post mortem and during life, to discover a micro-organism. The only abnormal condition that was found in the blood of these negroes, as also in a previous case of Dr. Stephen Mackenzie's (the tissues of which by his courtesy I was able to examine and observed similar histological changes), was the existence of the embryo filaria perstans in the blood. The evidence of this being the cause of the symptoms or of the morbid process found in the nervous system is wholly inadequate. Although there was this chronic inflammation, yet throughout the nervous system there was far less cellular atrophy and nerve-fibre destruction, even in the most advanced case, than one meets with in quite the early stages of general paralysis. In fact, the brains showed little or no atrophy or change to the naked eye; and microscopically there was very little disarrangement of Meynert's columns in one case. The weight of the brains showed little deviation from the normal in one case and none in the other, whereas the bodies were extremely emaciated in both cases. I think this evidence tends to show that there is a primary atrophy in general paralysis and that the inflammatory and vascular changes are secondary complications. Primary degeneration of the neurones may affect the afferent, efferent, or association systems, singly or combined, and in the tabetic form of general paralysis all three may be affected.

PRIMARY DEGENERATION OF THE AFFERENT SYSTEM OF NEURONES.

In tabes we have an example of degeneration of the

[3] Brit. Med. Jour., 1899.

afferent projection system which, for reasons already mentioned, is probably due to nutritional failure on the part of the posterior spinal neurone, by which parts most remote from the centre of nutrition undergo a regressive atrophy. The cells of origin seldom undergo marked changes unless pigmentation can be considered evidence of degeneration, but there seems to be some reason why the cells of the posterior spinal ganglia should be able to maintain a trophic independence. Possibly it may be the existence of the capsule, or possibly the cells receive stimuli from the viscera by sympathetic branches, or, lastly, it may be that they have become more or less independent of the influence of stimuli by the impulses from the periphery travelling directly across the T-shaped process. Again, after section of the posterior spinal roots I did not find any change in the posterior spinal ganglion cells. Moreover, we know that in amputation cases of long duration, although the nerves and posterior roots waste, the spinal ganglion cells undergo little change. It is particularly the central projection of the neurone that undergoes the degenerative process in tabes, and from the experimental evidence above adduced this would not suffice to cause changes in the cell. The peripheral portion of the neurone—viz., the sensory peripheral nerves—have been shown to undergo regressive atrophy and degeneration from the termination towards the centre. We know that the peripheral portion of the T-shaped process is ensheathed by the hollow mesoblastic cells forming the sheath of Schwann, and which we have shown for many reasons probably exercises an indirect trophic influence upon the long axis-cylinder process.

Again, in tabes, the idea that a sclerosis of the posterior columns produced by an irritative proliferation of the glia tissue is the initial morbid process causing a secondary degenerative atrophy is the result of confusion of cause and effect. The overgrowth of the glia tissue is the result of, and proportional to, the primary progressive atrophy of the nervous elements, for we cannot suppose that the glia tissue would electively destroy exogenous fibres, leaving the endogenous intact. In support of this statement I show a photomicrograph of the sixth cervical segment of the spinal cord of a monkey in which the third, fourth, fifth, sixth, and seventh cervical and first, second, and third dorsal posterior spinal roots were cut on the left side. The eighth cervical, which especially supplies the hand, was not cut. This animal was kept alive six months, and it was after a time very difficult to determine upon which side the operation had been performed, as it used each hand equally well, thus behaving entirely different to the animals which had had all the roots cut.[4] The result of this operation is shown in two bands of sclerosis in the posterior column on the side of the divided roots, with an area of normal fibres corresponding to the undivided root lying between (Fig. 5).

It will be observed in this photo-micrograph of the sixth cervical segment that fine fibres are passing across the area of sclerosis to the grey matter of the posterior horn; in not a single section of all the segments of the upper part of the cord could I find the absence of these fibres, which could only be terminal branches of the undivided eighth root. This points to the probability of the overlapping of roots of spinal segments. It certainly shows that sclerosis does not cause atrophy of fibres, for here is a band of fibres lying between two definite bands of sclerosis with delicate fibres passing across the sclerosed area. Obersteiner has maintained that the degeneration of the posterior columns is due to a meningitis affecting the roots at their entry, thereby compressing the accompanying nutrient vessels; but there are so many facts against this theory which will occur to everyone upon consideration that I need not mention them. Suffice it to say that one does not find this same degeneration of the posterior columns in obvious cases of meningitis, syphilitic in origin. Obersteiner figures specimens stained by the Pal method showing as the fibres pass through the membranes to enter the cord disappearance of the staining. This, however, must not be taken as indisputable evidence of degeneration at this particular point because the anterior roots sometimes show a similar defect in staining upon their emergence from the cord. Moreover, the meningitis theory does not explain the changes in the peripheral nerves met with in this disease, nor does it explain the affection of the posterior roots as far back as the ganglion, leaving the anterior roots quite intact. That some anatomical condition of the circulation in the posterior columns may act as a contributory factor, as occurs in the frontal and central convolutions in general paralysis, is possible, especially when one considers the effects of cerebral tumour in the production of degeneration limited to the posterior columns (Hoche, Batten).

[4] Mott and Sherrington: Proceedings of the Royal Society, 1895.

PRIMARY DEGENERATION OF THE EFFERENT SYSTEM.

In amyotrophic lateral sclerosis we have an example of a systemic degeneration affecting the motor efferent system of neurones from cortex to periphery. I have had the opportunity of examining three typical cases of this disease; in all three I have found degeneration of the whole efferent system comprising the cortico-spinal neurone and the spinal muscular neurone, the degeneration being limited to these neurones alone. This was pointed out by Sir William Gowers in the first edition of his manual. Certain groups of the motor spinal neurones we know from clinical and microscopical observation are affected before others—e.g., the postero-external group in the eighth cervical and first dorsal segments of the cord is especially proved to be the seat of the earliest and most severe change in a large number of cases. This is a group of neurones which presides over the small muscles of the hand. I am of opinion that the morbid process in these systemic degenerations commences at the periphery of the neurone and extends back towards the trophic and genetic cells of origin, finally, in prolonged cases, causing the destruction of the cells themselves. The arguments I would advance in favour of this view are that in some cases of amyotrophic lateral sclerosis degeneration could only be followed as far as the pyramids, in others to the crus cerebri, while in other cases, published by Charcot and Marie, Kahler and Pick, and Kowjenikoff, the atrophy had extended to the pyramidal cells of the cortex. In the case referred to by the last observer there was even atrophy of the motor convolutions with thickening of the membranes; this I have also observed in one of the three cases I have above mentioned. In two of the three cases which I have examined there was not only degeneration, discoverable by the Marchi method, of the whole cortico-spinal neurones, but of the lateral branches which pass off from the axis-cylinder processes to enter the corpus callosum (*vide* Fig. 6). This degeneration of the motor fibres in the corpus callosum strongly favours the primary degeneration theory of the origin of the disease being a nutritional degradation of the neurones themselves independent of external vascular or supporting tissue changes. Moreover, in these cases I have found that the tangential, super-, and inter-radial systems of fibres were intact (*vide* Fig. 7). Now, if it were any external condition these neurones would have suffered with the motor neurones. Senator published a case of typical amyotrophic lateral sclerosis in which there was no degeneration found in the pyramidal tracts. We can only explain the symptoms by supposing that there was interruption between the cortico-spinal and spinal muscular neurones, either a failure of junction between the two, or possibly, in view of the opinion of von Monakow and of the recent interesting observations of Schäfer, an atrophy of intermediate cells (of Golgi) (*vide* Fig. 8). Schäfer is of opinion, based upon observations made by the Marchi method on spinal cords of animals on which he had performed hemisection of the spinal cord, that the fibres of the pyramidal tract do not end in the terminal arborisation around the anterior horn (spino-muscular neurones), but are in connexion with intermediate cells situated at the base of the posterior horn; if this doctrine be true a voluntary motor impulse will pass through three sets of neurones instead of two. There is always a considerable amount of cellular atrophy at the base of the posterior horn in amyotrophic lateral sclerosis, therefore the appearances presented by this disease do not negative this theory.

DEGENERATION OF AFFERENT AND EFFERENT SYSTEMS.

Both afferent and efferent tracts of the spinal cord may undergo degeneration, giving rise to the condition known as "combined sclerosis" which is met with in various forms of grave anæmia and in pernicious anæmia, first thus described by Lichtheim and Minnich, also in ergotism, pellagra, and lathyrism. This degeneration cannot be produced experimentally in animals, and we must suppose that some auto-intoxication occurs by which a progressive degeneration affecting primarily the long tract afferent and efferent systems in the cord takes place. I have had the opportunity of examining microscopically three cases of combined sclerosis with grave anæmia, and I found that the process of degeneration was not limited to the spinal cord. In two

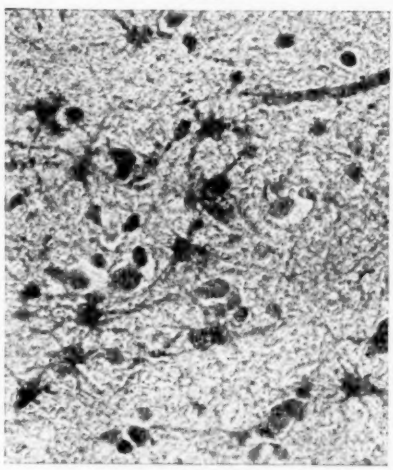
cases which I examined by the Nissl method there were marked changes in the cortical pyramidal cells, and when examined by the Marchi method all these cases showed degeneration in the whole pyramidal system from the cortex downwards, although it was more marked and extensive in the spinal cord than in the pyramid and pons. Likewise, the cells of Clarke's column showed in two cases examined by the Nissl method degenerative changes, and both ventral and dorsal cerebellar tracts were extremely degenerated. The changes, however, in the posterior spinal ganglia were but slight, probably for the same reasons as I have mentioned in referring to tabes.

A valuable paper on Sub-acute Combined Degeneration has recently appeared in *Brain* by Batten, Russell, and Collier. 12 cases are narrated and seven necropsies with microscopical examinations. The authors are of opinion that the disease is a degeneration due to a toxic agent in the blood.

POLYNEURITIS.

Multiple polyneuritis occurs as the result of toxæmia. The poisons which give rise to the condition are numerous, but by far the most common is alcohol, and it is about this that I shall speak more particularly. Alcohol affects not only the peripheral nerves but the brain too, where it produces degenerative changes accounting for the symptoms manifested by the patients during life. A consideration of the extent of surface of the motor and sensory neurones shows that relatively the portions covered with the myelin sheath and sheath of Schwann, as compared with the rest of the neurone, are enormous. For it is obvious that the neurones supplying sensation to the soles of the feet and the motor neurones supplying the muscles of the feet are from three to four feet long, and if we admit that the trophic centres are in the cells of origin at the lower end of the spinal cord, then it is quite obvious that parts so remote from the trophic and genetic centre will suffer from nutritional failure caused by the insidious action of toxic

FIG. 8.



substances such as alcohol. As the effects of the poison become more marked so the functional defect in sensation and movement travel up the legs towards the centres, so that we have in peripheral neuritis an anæsthesia progressing in the manner one puts on a stocking, and as sensation returns in recovery it proceeds as one takes off a stocking, except that there is not a sharp upper border. This would quite accord with the fact that the parts most remote from the centres of nutrition are the first to be affected and the last to recover. Very probably also the parts most remote from the centre of circulation, the heart, are more liable to be affected. Thus, the extremities of the limbs are most affected as regards movement and sensation, and it seems that mineral poisons, arsenic, lead, &c., and alcohol, which are taken into the system for some time before effects are produced, act more particularly on the peripheral nerves. There is very little evidence in these cases of the poison producing interstitial inflammation, neither do we find changes sufficiently marked, as a rule, in the ganglion cells to account for the symptoms. The earliest and most obvious change is a proliferation of the nuclei of the sheath of Schwann, and this condition may be found before microscopical evidence exists of the degeneration of the myelin sheath, as revealed by the Marchi method. This does not, however, show that changes have not taken place in the myelin sheath, for the following reasons. The products of degeneration, we know from experimental section of the nerves, are rapidly absorbed and are by no means so obvious as in the central nervous system. Again, a chemical change may have taken place in the protagon, which has not advanced to a stage in which a non-phosphoretted fat, essential for the Marchi reaction, has been produced. We know that for at least four days after section of the nerve the Marchi reaction is not given, and yet we have no reason to believe that protagon has not been undergoing a chemical change during that period. Again, the nerve fibres are not all affected simultaneously, some fibres being affected more than others. It may be asked, if the poison, which has been accumulating in the system and producing its toxic effects on the nervous system, acts upon the whole neurone, why are changes not seen throughout the whole neurone? and why should the poison not be the effect of irritation of the chain of tubular mesoblastic cells which surround the axis-cylinder process of the neurone? If it were so there is no reason why it should not affect the nerves of all parts of the body equally. I conceive that this proliferation of the nuclei of the sheath of Schwann is due to a disturbance of the normal physiological nutritional interrelationship between the neurone and the cells which ensheath its axis-cylinder process. It is a vital reaction on the part of these cells to the progressive nutritional failure of the neurone which will eventually terminate in destruction of the essential conducting axis-cylinder. In fact, we know that this takes place when a nerve is cut, and it is a provision for repair; therefore it is wrong to look upon this proliferation of nuclei of the sheath as evidence of irritative effects of the poison, but rather as an attempt to repair the destruction caused by the poison.

In three cases of alcoholic neuritis which I have lately examined in conjunction with Mrs. Hamilton Williams, M.B., it was found that many of the nerves did not show very marked evidence of degeneration by the Marchi method; there was, however, considerable nuclear proliferation of the sheath of Schwann, especially marked in the nerves of the lower extremities. In one case in which there was complete paraplegia the ganglion cells of the lumbar-sacral spinal cord showed well-marked chromolytic changes; the Nissl granules in many of the cells of the anterior cornua had entirely disappeared; the nucleus was eccentric and the processes broken off; and some of the cells were vacuolated (*vide* Figs. 9, 10, 11, and 12). Marked degenerative changes were also observable in nearly all the nerves of the limbs by the Marchi method (*vide* Figs. 13 and 14).

From previous experience and from the electrical reactions which the muscles gave during life I should conclude that a great number of the cells would recover under favourable circumstances. The changes in most of the cells resembled rather the condition which one would find after section of a nerve, the reaction phase, mentioned in Lecture II.; in fact, when we consider it, the condition is really very much the same as that produced by section, for the axis-cylinder processes of the sensory and motor nerves have in advanced cases died for a considerable part of their extent, but under favourable circumstances, especially if the poisonous influence be removed and the nutrition of the muscles be maintained by appropriate treatment, there is no reason why, the same as in section of a nerve, regeneration should not take place. The great thing to remember is that the joints should not be allowed to become stiff or the muscles inactive. Passive movements, massage, and galvanism will stimulate the neurones and hasten regeneration, for we have already had abundant evidence to show the important influence stimulus exercises upon the metabolism of the neurones and the degenerating and atrophic effects of non-stimulation. In two of these cases, in which there was marked fatty degeneration of the heart, we found fatty degeneration of the fine myelinated fibres of the vagus (*vide* Fig. 14).

Examination of the brains of all three cases showed a certain amount of atrophy of the tangential systems of fibres, accounting for the dementia which existed in all three cases. There were also changes revealed by the Nissl method in the cortical pyramidal cells, but seeing that there was no degeneration discovered by the Marchi method in the

FIG. 9.

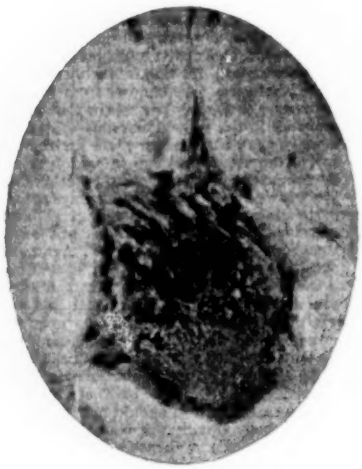


FIG. 10

FIG. 11

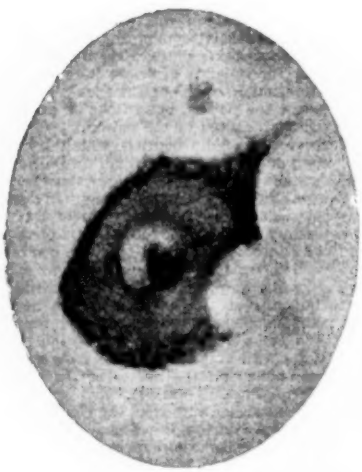


FIG. 12.

FIG. 13.

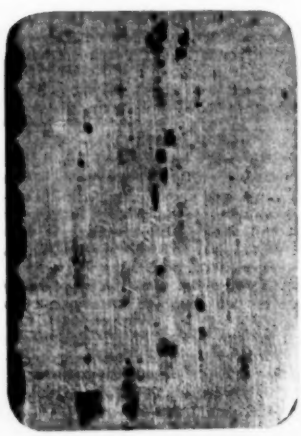
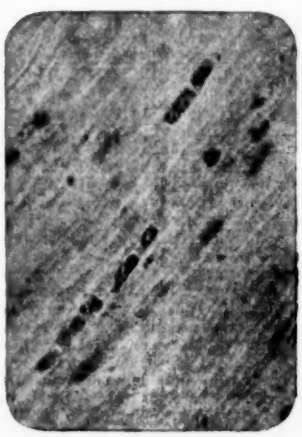


FIG. 14.



spinal cord we cannot assume that these were more than of a functional nature. In one case there were marked congestion and microscopical intra-cerebral hæmorrhages. The condition of the cortex could not be mistaken for general paralysis, for there was not the same overgrowth of glia cells or atrophy, nor was there the same disappearance of Meynert's columns so characteristic of the latter disease.

RELATION OF STIMULUS TO DEGENERATION OF THE NEURONE.

Structure and function are mutually reciprocal and interdependent and we know that a structure which is not used will gradually lose its function, while its nutrition will also suffer and in time atrophy may occur. Consciously and unconsciously a continuous stream of impulses is pouring into the nervous system from without by the sensory channels, which are the avenues of experience and intelligence, and our bodily and psychical life depends upon the existence of such stimuli.

Excess of normal stimulation of itself is seldom the cause of organic disease, although we have examples of psychomotor paralyses in the palsy affecting scriveners, typewriters, pianoforte players, violinists, hammer-men, &c., but whether this is due to an actual degeneration or to a functional depression is not known. If, however, by excessive exercise such a disturbance can take place without any other apparent cause, then undoubtedly stress acting upon structures in a state of nutritional deficiency will lead to a disturbance of the normal physiological equilibrium and a progressive degeneration of those structures which are most remote from the centre of nutrition. Increased functional activity of a part, however, is associated with increased blood-supply, and if the blood contains a toxic substance a larger amount of that toxic substance will be carried to the functionally active part, so that whatever benefit might arise in the way of repair from the additional amount of blood will be neutralised by the excess of poison. Numbers of instances have occurred in my experience in which stress seemed to determine the seat of the degenerative process. I will give a few illustrations. 1. A policeman who was affected with tabes commencing in the arms turned out to be a mounted policeman, and when I pointed out to the students the unusual situation he immediately volunteered the information that the pains began in the arm in which he held the reins. 2. A case of amyotrophic sclerosis affecting a cooper began in the muscles of the right arm with which he wielded a four pound hammer. 3. A man who had alcoholic dementia, paralysis, and wasting of the muscles of the upper extremities, the lower being unaffected, was shown to me as a case of progressive muscular atrophy. I found that he was a porter and the symptoms he presented were determined by his occupation of carrying boxes all day on his shoulders. This patient completely recovered. I will not detain you with a number of further examples, but asylum experience only too well demonstrates the importance of undue mental excitement in causing degeneration of the higher structures of the brain, as in general paralysis. Professor Edinger has emphasised the important influence of stress in determining the seat of nervous degeneration, and his philosophical writings on the subject are worthy of careful consideration; he has, too, endeavoured to prove it experimentally.

Voss was unable to produce degeneration in the spinal cord in rabbits, guinea-pigs, and dogs by injections of pyridine sufficient to produce a severe anæmia; but Edinger repeated these experiments, varying them by inducing stress upon the nervous system by various means, one of which was to place the animals (rats) in a wheel cage. He claims then to have shown: (1) that abnormal stress can produce in animals a degeneration of the posterior columns; (2) that it is possible to produce a predisposition by artificial anæmia by which the influence of stress of much less degree and of much shorter duration can cause this posterior column degeneration; and (3) that this disease stands in close relationship, both as to localisation and cause, to the tabetic degeneration of the posterior columns in man.

RELATION OF HEREDITY TO DEGENERATION OF THE NEURONE.

Of all the causes of nervous disease hereditary predisposition stands pre-eminently first. It may be paternal, maternal, convergent, from grandparents, or, according to Weissmann's theory of the continuity of the germinal plasm, there is no limit to the remoteness of the origin of a neuropathic taint. This doctrine must have been known to the high-born Romans who carried the masks of all their ancestors upon public occasions. In fact, in Lucretius it is stated: "Sometimes, too, the children may spring up like their grandfathers, and often resemble the forms of their grandfather's fathers, because the parents often keep concealed in their bodies many first beginnings mixed in many ways, which first proceeding from the original stock one father hands down to the next father, and then from these Venus produces forms after a manifold chance and repeats not only the features but the voices and hair of forefathers; and the female sex equally springs from the father's seed, and males go forth equally from the mother's body, since these distinctions no more proceed from the fixed seed of one or other parent than our face and bodies and limbs. Again, we perceive that the mind is begotten along with the body and grows up together with it and becomes old along with it." The history of the Roman emperors from Julius Cæsar, one of the greatest geniuses the world has seen, but an epileptic, shows how the endeavour to keep the sacred Julian blood for the dynasty culminated under the influence of a depraved environment in the criminal madness of Tiberius, Messalina, Caligula, and Nero. Strictly speaking, it is the tendency to nervous disease rather than the disease itself which is inherited, and this is frequently spoken of as neuropathic or neuro-psychopathic taint. There are, besides, a number of inherited diseases which, although rare, are of great interest, inasmuch as they affect members of a family, the disease frequently commencing in each individual at about the same age. These are termed "family diseases" and include hereditary ataxia (Friedreich's disease), amaurotic idiocy, hereditary chorea, and paramyoclonus multiplex, an interesting family of cases of which I have recently seen. Two boys and two girls were affected with epilepsy and this clonic choreiform spasm of the muscles; in each it commenced at the age of 15 years. There was no direct hereditary history in the parents of any nervous affection, but an uncle suffered from epilepsy. Presumably, therefore, ancestral germinal plasm possessed the neuropathic predisposition, which possibly under some influence which I was unable to ascertain—e.g., some acute specific fever affecting the members of the family or possibly alcoholism or syphilis in the parents—had supplied the contributory factor to develop the disease. In a healthy nervous system we must suppose that the balance of potential is high and that the sense of fatigue is the natural indication for sleep and repose by which nervous energy may be recuperated. The neuropath may be conceived to possess in some portion of his nervous system communities, groups, and systems of neurones, either of defective durability or with an inherited low potential, readily becoming exhausted and especially liable to functional depression, and which under the influence of contributory factors such as toxic conditions of the blood or undue stress undergo premature degeneration. To explain the inherited neuropathic tendency morphologically we may suppose that there is an inherent defect in the germinal plasm which is concerned in the formation of the neurones.

Certain acquired conditions in the parents, affecting them especially at the time of conception, are liable to produce this defect in the germinal plasm; they are acute and chronic alcoholism, syphilis, and tuberculosis. Statistics by Mr. Tredgold relating to 40 cases of congenital imbecility, although not numerous, are valuable because reliable, and in course of time, when he has completed the investigation of this question in all the London county asylums, as he has done at Claybury Asylum, will be of still more value. As far as they go they show that the most important cause of congenital imbecility is inherited neuropathic taint (70 per cent.), generally in some form of insanity,[5] but that alcoholism, syphilis, and tuberculosis are important contributory factors. My own researches on juvenile general paralysis, of which I have now had the opportunity of examining 50 cases, show: (1) that the disease affects both sexes equally; (2) that it may commence at any age from eight to 23 years,[6] according

[5] It is very interesting to note that two of the cases of imbecility with congenital syphilis have become juvenile general paralytics, and in neither of these cases was there a family history of insanity which is independent corroboration of my observations, as neither of these cases are included in my 30 cases.

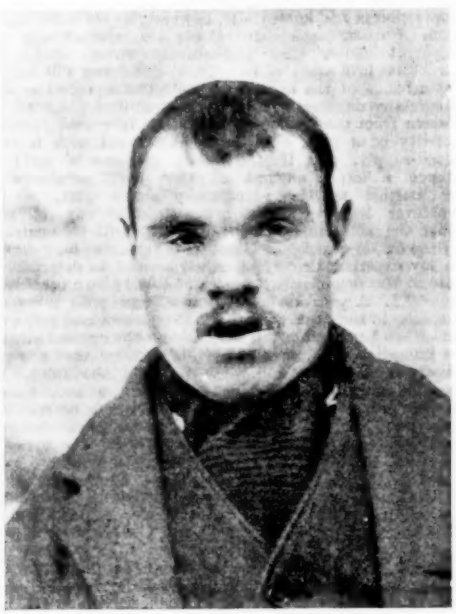
[6] It is possible that some of the cases occurring in adults in which no history of acquired syphilis can be obtained may still owe the disease to an inherited taint. It is not necessary that they should show external signs of syphilis, for many of the cases which I have recorded were proved to be born of syphilitic parents although manifesting themselves no external signs of disease.

to my statistics; and (3) that in 80 per cent. of the cases there were either undoubted signs or history of congenital syphilis and that in 20 per cent. it could not be excluded. Therefore we may assume that the effect of syphilis on the germinal plasm on one or both of the parents is the essential cause. In the greater proportion of the cases I was unable to obtain a history of insanity or nervous disease in the family, although it was remarkable that in four of the cases and also in one hereditary case of tabes the fathers suffered with general paralysis. The notes of their cases give no evidence of their having acquired syphilis, yet in four out of the five cases there were distinct and well-marked signs in their offspring. From a very careful study of the family histories of these cases I was led to believe that the germinal plasm of the parents, particularly of the father, may be very unequally affected by the syphilitic poison, and it seemed to me that the inherited syphilis was not infrequently the result of spermatic infection only. Many of the mothers never had any illness that they knew of, yet some of their children showed syphilitic teeth, chorio-retinitis, rhagades, and other characteristic signs, while

FIG. 15.

other children appeared perfectly healthy (*vide* Figs. 15 and 16). Generally, however, the history was—miscarriages, still births, syphilitic children, and healthy children in succession. In one family there were three children; the eldest had no external signs of congenital syphilis, but a syphilitic liver was found post mortem. He was an able-bodied seamen, but at the age of 20 years broke down with general paralysis. I consider that this was induced by stress, for he was on duty in the Mediterranean just at the Fashoda crisis and the disease commenced by a fit. The next brother had a characteristic syphilitic nose and teeth but was earning his living as an artisan. The youngest boy is an imbecile in an asylum (*vide* Fig. 16), with characteristic objective signs of congenital syphilis. Another family was interesting in this respect that the eldest daughter of a mother who gave a history of infection showed no signs of syphilis on the body yet died from general paralysis. The next daughter presented well-marked external signs, but at present is healthy otherwise. The majority of the 30 cases gave some interesting details bearing upon this question. Another factor which seemed to have an important bearing upon the occurrence of general paralysis in children of parents suffering with syphilis was the existence of chronic alcoholism in one or both the parents. Thus we see impaired vitality of specialised structures may result from devitalising influences acting upon the germinal plasm of one or both the parents. With regard to the toxic influence of alcohol on the nervous system I have been particularly struck with this fact, that although at least 20 per cent. of the people admitted into the London county asylums yield a history of intemperance as the cause of their mental symptoms, yet I only once remember seeing in the post-mortem room of the asylums a case of well-marked cirrhosis of the liver with ascites. That was in the case of a person celebrated in the police-courts who was convicted nearly 400 times of drunkenness before she was found to be certifiable as incapable of taking care of herself. One must suppose, therefore, that these people who come into the asylum are very susceptible to the toxic influence of alcohol and long before they could drink sufficient to produce cirrhosis of the liver symptoms of alcoholic poisoning of the nervous system arise. In fact, it would rather show that a person who can drink sufficiently long to get a hob-nailed liver has inherited a nervous system of unusual stability. To the mentally unstable alcohol is a poison, and I have been particularly

FIG. 16.



struck with the fact that it acts even in moderate quantities as a poison on women at the climacteric period when potential is low in the nervous system. Another class of individuals often potential to whom alcohol is unquestionably dangerous is the neurasthenic. The sense of fatigue, whether of mind or body, is physiological and protective. It should be responded to by rest; but the active-minded town-dweller who is suffering from nervous exhaustion takes spirits to enable him to make up the deficient energy. He draws, so to speak, a bill on his health which must always be renewed at a higher rate of interest. My own observations and those of Mr. Tredgold, the technical scholar, entirely agree with the observations of numerous authorities who have shown that epilepsy, insanity, imbecility, idiocy, mental weakness, and loss of moral control and will power are frequently the heritage of children born of drunken parents.

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DESCRIPTION OF ILLUSTRATIONS.

FIG. 1.—Symmetrical perforating ulcers from a case of tabetic general paralysis.

FIG. 2.—Section of ascending frontal convolution from a case of general paralysis showing engorgement of vessels, disappearance of Meynert's columns from displacement of the nerve-cells, and overgrowth of glia cells.

FIG. 3.—Section of occipital lobe from same case showing practically normal appearance of the cortex. The Meynert's columns are distinctly seen and there are no vascular changes.

FIG. 4.—Case of juvenile general paralysis from which these preparations were made. Photograph shows Hutchinson's teeth and rhagades round the mouth.

FIG. 5.—Described in text.

FIG. 6.—Section of the corpus callosum from a case of amyotrophic lateral sclerosis showing large black degenerated fibres in transverse section.

FIG. 7.—Section of the superficial cortex cerebri of the Rolandic area stained by Marchi-Pal method showing the super-radial and tangential fibres intact.

FIG. 8.—Section of lower portion of grey matter showing absence of large pyramidal cells and replacement by Deiters' cells. This occurred in little isolated foci of the motor area of the cortex.

FIGS. 9, 10, 11, and 12, are photo-micrographs of cells of the anterior horns of the lumbo-sacral enlargement from a case of a woman with severe alcoholic paraplegia with extensive muscular atrophy and degenerative changes in the muscles and nerves of the legs. Magnification 600.

FIG. 9 shows a cell with commencing chromolytic change.

FIG 10 shows a cell with advanced chromolytic change and eccentric nucleus. Both of these cells resemble the appearances presented by cells after section of a nerve and the change may be due to the morbid process having caused destruction of their axis-cylinder process. They, however, are capable of regenerating the axis-cylinder process, the same as may occur after section of a nerve.

FIGS. 11 and 12 show, on the other hand, morphological changes indicating death of the trophic and genetic centre. We see in Fig. 11 a concavity on one side indicating rupture of the nuclear membrane, and in Fig. 12 there is so much vacuolation of the protoplasm of the cell as to indicate its destruction.

FIG. 13 is a section of the external popliteal nerve, stained by Marchi method. The black degenerated myelin is not very abundant because it has in great part been absorbed, but other stains—e.g., Stroebe—show that hardly any healthy fibres exist. This preparation is from the same case as the cells described above. Magnification 200.

FIG. 14.—Section of the vagus nerve from a case of acute alcoholic neuritis with hæmorrhagic encephalitis and dementia. The patient suffered with very marked signs of cardiac failure and died comparatively suddenly. Marked fatty degeneration of the heart was found post mortem. The section stained by Marchi method shows fine medullated fibres undergoing degeneration. Magnification 600 diameters.

FIG. 15.—Case of tabetic form of juvenile general paralysis which died, aged 20 years, three months after onset of symptoms. The photograph shows characteristic teeth.

FIG. 16.—Photograph of congenital imbecile with depressed bridge of the nose. He also had Hutchinson's teeth. A brother who died from juvenile general paralysis showed no such external signs.

THE EXETER DISPENSARY.—A special meeting of the governors of the Exeter Dispensary was held on June 30th under the presidency of Mr. S. Ward, J.P. It was decided to add two medical officers to the staff of the institution and it was further determined that any member of the medical staff who wished to do so should be allowed to limit the number of patients admitted under him on his day to 20 recommends, provided he did not refuse to admit any urgent cases or those of patients coming from a distance. The governor decided that for the future a trained nurse should be appointed to the dispensary. There were six applications for the posts of surgeons and on a ballot being taken Dr. Ransom Pickard and Dr. J. A. S. MacKeith were elected.

ABERDEEN HOSPITAL SATURDAY.—On Saturday, June 23rd, the fifth annual demonstration under this movement took place in what promised to be splendid weather, broken somewhat by a thunderstorm. In the forenoon there was a monster street procession from the reclaimed land north of the river Dee to Duthie Park, the route being by leading thoroughfares, and the parade being taken part in by the various friendly societies in the city, representatives of trades, cyclists in fancy costume, school-children, and others. Collections were made *en route* from the spectators, and at Duthie Park (where a charge for admission was made) an attractive programme of sports, including a brass band competition, was presented. The attendance was very large, but it will be some time before the financial result is made known.

ON THE CONFUSION OF TWO DIFFERENT DISEASES UNDER THE NAME OF RUBELLA (ROSE-RASH).

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A SUSPICION of the confusion of two different diseases under the name of "rubella" has been entertained by some of those who have had an extensive experience in the eruptive fevers of the young; but while myself suspecting the fact for several years I failed to attain conviction until the advent of an epidemic in April, 1900. These two diseases are not classified in the third edition (being the second revision), 1896, of the "Nomenclature of Diseases" by a joint committee of the Royal College of Physicians of London, but are included under the single terms of "rubella," "rötheln," "German measles," or "epidemic rose-rash." The purport of the present communication is the establishment of the proposition, on definite and analysed grounds, that two clearly distinguishable diseases exist.

It will be admitted that there is a distinct disease called "measles" (morbilli). It will further be accepted that there exists another definite disease termed "scarlet fever" (scarlatina). Another disease usually, though most unfortunately, described as "German measles" (rubella) is also recognised. I hope to prove to the satisfaction of the profession that this disease does not consist of two varieties of one kind, as I have hitherto contended with the profession in general, but that two definite and separate diseases have been confounded under one name. For the law observed in zymotic diseases prevails here, *that an attack of one of these diseases does not protect from an attack of the other.*

By many members of the profession the diseases hitherto classed under the term "rubella" are considered to be of a very trivial nature. But when one frequently hears thas certain children have had three attacks of measles—that it to say, English measles, German measles, and the disease I am about to describe—none of which affords protection against the remainder, and where one at least is, or is likely to be, confounded with scarlet fever, the question assumes an aspect of grave importance both to the young and to the schools where an important portion of their lives is spent. Precise accuracy in distinctions will thus aid in diminishing the prevalence of zymotic disease and tend to enhance professional credit. It was not until the close of the seventeenth century that, mainly through the researches of Sydenham, scarlet fever ceased to be confounded with measles, and now, at the close of the nineteenth century, rose-rash is still confused with measles and with scarlet fever. Finally, on the verge of the twentieth century, we are only just discovering, and not merely surmising, that a "fourth disease," perfectly distinct from measles, rose-rash, and scarlet fever, is to be distinguished. I will not venture to suggest the appropriate name for this disease. I content myself with referring the question of nomenclature to the Royal College of Physicians of London. But whatever term should be ultimately adopted it should obviously preclude any possible confusion with scarlet fever or rose-rash. Pending this authoritative decision I shall tentatively employ the general expression of the "fourth disease."

The fundamental law in medicine—the science of our practice, ably taught by Cullen more than a century ago but now too frequently ignored—affirms that one attack of an eruptive fever entails immunity from a second attack in the same individual during childhood. The "germs" of infectious disease apparently require a virgin soil for development; a prior attack seems so to exhaust the soil or so to transform it chemically by the products of growth that it becomes incapable of furnishing a suitable nidus for the reproduction of the germs. This law is so permanent (for the insignificant exceptions may be regarded as scientific curiosities only) that for the practical guidance of our work it may be considered an absolute and invariable rule. Each disease, moreover, possesses its own characteristic seed which is entirely *sui generis*. But a curious fact in the life-history of these zymotic diseases, at present inexplicable, is that the growth of some germs in the body appears to produce so vital an alteration in the soil as to facilitate the immediate fertilisation and development of the germs of other diseases.

For example, the concurrence, or sequence, of measles and whooping-cough, of scarlet fever and diphtheria, and of measles and diphtheria is well known, and I have observed the marked influence which influenza has exercised upon the concurrent or subsequent development of influenza and epidemic rose-rash and of influenza and mumps.

The question has also occurred to me whether the "fourth disease" which so closely resembles scarlet fever would tend in a series of cases gradually to develop into true scarlet fever. But I have never observed the slightest indication in this direction. I have always found, as soon as I knew my subject, that each disease bred true. There was a well-expressed line of demarcation between the two diseases, and notwithstanding their close superficial resemblance every case was either the true "fourth disease" or true scarlet fever, and I shall presently show the concurrence of these two diseases in the same epidemic. I no more believe in its indefinite distinction than I do in what is called diphtheritic sore-throat; either a disease is diphtheria or it is not. The difficulty lies in the accuracy of our diagnosis and not in the definiteness of the disease. Nothing, however, can be achieved without the capacity of accurate diagnosis and there are no cases in medicine which at times are more puzzling and require the expenditure of more thought and judgment than the zymotic diseases we are discussing—rose-rash, the "fourth disease," and scarlet fever. Their elucidation has bewildered and misled many of the ablest physicians, to our professional discredit and the detriment of the welfare of schools. Yet they are as separable as typhus fever is distinct from typhoid fever. To mistake rose-rash for measles causes infinite trouble, but constant confusion of this "fourth disease" with scarlet fever involves, even admitting the perplexities of diagnosis, a very serious error, for if the patient be suffering from the "fourth disease" a period of isolation, usually of 14 days, and at most 21 days, is sufficient, notwithstanding the desquamation, which is apparently innocuous, while if the malady be scarlet fever a period of close confinement varying from 42 to 56 days is stated to be required in accordance with our present knowledge. Conceive the significance of this difference in an extensive epidemic—an isolation (two-thirds longer time for each case of scarlet fever) of wholly unnecessary seclusion with all its attendant discomforts, loss of time, and pecuniary cost entailed for medical attendance and nursing. The difficulties may be gauged when errors are committed even by those who have seen a multitude of cases. It requires some courage, I admit, to suspend judgment and plead ignorance when a definite diagnosis is important and urgent; but the admission, when the illness has been erroneously assumed to be scarlet fever, that it is merely this "fourth disease" reaches almost the limit of intellectual and moral candour.

The question has occurred to me repeatedly whether on account of its area, season, and non-fatality the very extensive but non-fatal epidemic of scarlet fever which raged throughout the country in the autumn of 1892 and the spring of 1893 was not really to a large extent an epidemic of the "fourth disease," for it not only occurred to a great extent out of its season but in both cases in which I was consulted by the head-masters of two schools at a distance from Rugby the epidemic proved to be the "fourth disease" (which I then deemed a variety of rose-rash) and not scarlet fever. In one epidemic of rose-rash, however, the whole of the cases will resemble measles. In another epidemic of the (supposed) same illness every case will resemble scarlet fever, as occurred in an entire series of instances in the two schools to which I have referred, comprising 16 at one school and 12 at another. It was epidemics such as these which made me seriously reflect and induced me to institute more searching inquiry into the interpretation of their phenomena. We have also this remarkable fact about rose-rash (rubella) that although (and here there can be no shadow of doubt, since the one affords no protection against the other) it is a perfectly distinct disease from measles, from the "fourth disease," and from scarlet fever, and although rose-rash and the "fourth disease" may be concurrently epidemic, yet rose-rash, like measles, usually affects large numbers, while the "fourth disease," like scarlet fever, always occurs to a much more limited extent, probably on account of its being, again like scarlet fever, less infectious at the onset. In 1894 I wrote that it had been suggested that the disease named "rose-rash" comprised in reality two diseases. In my own mind I had frequently raised the question and had searched for cases in evidence, but I had signally failed to establish a single relevant fact to sustain the hypothesis. Increased observation and extended experience have now, however, convinced me to the contrary.

The great difficulties in the elucidation of the facts which distinguish this "fourth disease" from rose-rash have been these: (1) that similar symptoms to a great extent are present in both diseases, with the exception of the dual appearance of the rash; (2) that in the same patient the eruption of rose-rash sometimes resembles measles at the commencement and terminates by the coalescence of the spots in assuming the scarlet fever eruption (this, however, is quite distinct from the *course* of the rash in the "fourth disease"); (3) that these two diseases—rose-rash and the "fourth disease"—frequently occur in the same locality at the same time; and (4) that the period of incubation is almost identical in both diseases. I shall, however, prove by conclusive evidence—what I have only recently established by the occurrence of an epidemic—that an attack of rose-rash does not afford protection against the "fourth disease" and *vice versâ*. So minutely, again, does this "fourth disease" mimic scarlet fever that I am convinced that innumerable cases are ascribed to the latter which belong to the former, and *vice versâ*. I may add that it sometimes demands a series of cases before a conclusive diagnosis can be arrived at, when the result becomes incontrovertible, although when close and accurate observations are made the difficulties usually resolve themselves.

I shall now specify some of the practical difficulties which arise in the elucidation of this "fourth disease."

I.—I cite an epidemic which was stated to be scarlet fever but which proved to be this "fourth disease."

In the year 1892 the head-master of a public school called me in consultation in connexion with 16 cases of an illness which was supposed to be scarlet fever. After a careful investigation of the cases, some of which were in the first stage and others in the last, I was able to prove to my own satisfaction at all events that the disease was that which I then termed the "scarlet fever variety" of rose-rash (rubella) but which I should now designate the "fourth disease." As a difference of opinion existed the head-master, after explaining the position to the parents, wisely afforded them the opportunity of regarding the ailment as scarlet fever or as this "fourth disease," as they might decide. The only trouble occurred with parents who were medical men, all of whom considered it to be scarlet fever. But I never heard of a solitary instance of scarlet fever appearing in any of the lads who went home for the holidays. I did, however, hear of one of the nurses who, after she had left, suffered from what was diagnosed as a genuine case of rose-rash. Now let us estimate the meaning of this verdict to the affected lads themselves. We will consider the period of isolation alone, without introducing the elements of the anxiety and expense. If these cases indicated the "fourth disease" 14 days' isolation was usually amply sufficient if followed by

TABLE I.—*A Concurrent Epidemic of Scarlet Fever and the Fourth Disease.*

No. of case.	Date of appearance of a rash.*	No. of case.	Date of appearance of a rash.*
1	1896, Feb. 4th.	17	1896, March 3rd.
2	,, ,, 18th.	18	,, ,,
3	,, ,, 19th.	19	,, ,, ,,
4	,, ,, ,,	20	,, ,, 4th.
5	,, ,, ,,	21	,, ,, ,,
6	,, ,, ,,	22	,, ,, ,,
7	,, ,, ,,	23	,, ,, 5th.
8	,, ,, ,,	24	,, ,, ,,
9	,, ,, 24th.	25	,, ,, 6th.
10	,, ,, 26th.	26	,, ,, ,,
11	,, ,, 27th.	27	,, ,, ,,
12	,, ,, ,,	28	,, ,, 7th.
13	,, ,, ,,	29	,, ,, 8th.
14	,, March 2nd.	30	,, ,, 9th.
15	,, ,, 3rd.	31	,, ,, 20th.
16	,, ,, ,,		

* The dates of commencement of illness furnished to me in their sequence.

complete disinfection. 16 cases × 14 days = 224 days' isolation; 16 cases × 42 days = 672 days' isolation; or a difference of 448 days.

II.—I next refer to an epidemic of 31 cases of an illness (assumed to be the scarlet fever variety of rose-rash, but really this "fourth disease") which proved to be scarlet fever and the "fourth disease" simultaneously occurring. This epidemic conclusively shows the entity of this "fourth disease" as a distinct and definite malady, separable from scarlet fever and even from a modified scarlet fever.

In the year 1893 the head-master of a private school summoned me to a consultation on account of an epidemic amongst his boys which was regarded as the scarlatina variety of rose-rash (rubella). The head-master was a careful, painstaking man who supplied the date of illness of every boy; and the instances finally amounted to some 31 in number. (Table I.) The medical man in attendance also furnished most valuable assistance at my visit. It was a remarkable series of cases, especially as some of the patients (32·25 per cent.) apparently passed through the same illness twice over. I saw every boy affected at the date of my visit on March 9th, 1896, in every stage of the disease. Two of them were seriously ill and eventually died. Though the most careful investigation was made I had the chagrin of confessing that the problem remained unsolved—the most perplexing and anxious problem I had encountered in a long experience.

It was impossible to acquiesce in this preliminary failure and I undertook to return the next day. Meantime I pondered over my clinical notes and light dawned at last. In following out endless hypotheses I was enabled at length to show that there was a malady which commenced on Feb. 4th, 1893, which was followed by seven cases occurring on Feb. 18th and 19th, involving, therefore, a period of 14 and 15 days. On Feb. 24th another case of illness arose, followed by three others on Feb. 26th and 27th, and having therefore a period of incubation of from two to three days. Following this clue the problem was eventually solved the next day, as shown in Tables II. and III.

TABLE II.

No. of case.	Date of appearance of the rash of the "fourth disease."	Date of appearance of the rash of scarlet fever.
1	1896, Feb. 4th.	—
2	,, ,, 18th.	—
3	,, ,, 19th.	1896, March 13th.
4	,, ,, ,,	—
5	,, ,, ,,	—
6	,, ,, ,,	1896, March 7th.
7	,, ,, ,,	,, ,, 9th.
8	,, ,, ,,	—
9	—	1896, Feb. 24th.
10	—	,, ,, 26th.
11	—	,, ,, 27th.
12	—	,, ,, ,,
13	1896, March 9th.	,, ,, ,,
14	,, ,, 2nd.	—
15	,, ,, 3rd.	1896, March 12th.
16	,, ,, ,,	—
17	,, ,, ,,	—
18	,, ,, ,,	1896, March 9th.
19	—	,, ,, 3rd.
20	1896, March 4th.	,, ,, 8th.
21	,, ,, ,,	,, ,, 11th.
22	,, ,, ,,	,, ,, 13th.
23	,, ,, 5th.	(?).
24	,, ,, ,,	—
25	,, ,, 6th.	—
26	,, ,, ,,	—
27	,, ,, ,,	—
28	—	1896, March 7th.
29	—	,, ,, 9th.
30	1896, March 8th.	—
31	,, ,, 20th.	—

TABLE III.

No. of case.	Date of appearance of rash in cases of the "fourth disease."	Date of appearance of rash in cases of scarlet fever only.	Date of appearance of rash of the "fourth disease" followed by scarlet fever.		Date of appearance of rash of scarlet fever followed by the "fourth disease."	
			"Fourth disease."	Scarlet fever.	Scarlet fever.	"Fourth disease."
	1896.					
1	Feb. 4th.	—	—	—	—	—
2	,, 18th.	—	—	—	—	—
3	—	—	Feb. 19th.	March 13th.	—	—
4	Feb. 19th.	—	—	—	—	—
5	,, ,,	—	—	—	—	—
6	—	—	Feb. 19th.	March 7th.	—	—
7	—	—	,, ,,	,, 9th.	—	—
8	Feb. 19th.	—	—	—	—	—
9	—	Feb. 24th.	—	—	—	—
10	—	,, 26th.	—	—	—	—
11	—	,, 27th.	—	—	—	—
12	—	,, ,,	—	—	—	—
13	—	—	—	—	Feb. 27th.	March 9th
14	March 2nd.	—	—	—	—	—
15	—	—	March 3rd.	March 12th.	—	—
16	March 3rd.	—	—	—	—	—
17	,, ,,	—	—	—	—	—
18	—	—	March 3rd.	March 9th.	—	—
19	—	March 3rd.	—	—	—	—
20	—	—	March 4th.	March 8th.	—	—
21	—	—	,, ,,	,, 11th.	—	—
22	—	—	,, ,,	,, 13th.	—	—
23	—	—	March 5th.	(?)	—	—
24	March 5th.	—	—	—	—	—
25	,, 6th.	—	—	—	—	—
26	,, ,,	—	—	—	—	—
27	,, ,,	—	—	—	—	—
28	—	March 7th.	—	—	—	—
29	—	,, 9th.	—	—	—	—
30	March 8th.	—	—	—	—	—
31	,, 20th.	—	—	—	—	—

NOTE.—No. 9 was said to have had scarlet fever previously, but that illness was evidently the "fourth disease," for although the patient was freely exposed to the infection of the "fourth disease" he escaped it and had true scarlet fever. It was this mistaken diagnosis of his former illness which occasioned so much difficulty at the commencement. No. 22 and No. 28 died.

TABLE IV.

No. of case.	Date of rubella (rose-rash).	Date of the "fourth disease."
33	1896	1900, March 14th.
34	1888	,, ,, 15th.
35	0	,, ,, ,,
36	0	,, ,, 17th.
37	1899	,, ,, ,,
38	0	,, ,, ,,
39	(? Date of attack.)	,, ,, 19th.
40	0	,, ,, ,,
41	0	,, ,, ,,
42	1893	,, ,, 20th.
43	1899	,, ,, 21st.
44	0	,, ,, 22nd.
45	0	,, ,, 26th.
46	0	,, ,, 27th.
47	1893	,, ,, 28th.
48	0	,, ,, 29th.
49	0	,, ,, ,,
50	0	,, April 1st.
51	1896	,, ,, ,,
52	January, 1900.	,, June 1st.

THE DISTINGUISHING CHARACTERISTICS BETWEEN RUBELLA (ROSE-RASH), THE "FOURTH DISEASE," AND SCARLET FEVER.

Rubella (rose-rash).	The "fourth disease."	Scarlet fever.
1. *Premonitory symptoms.*—In many instances none; no headache; no vomiting; no catarrh; no cough; but frequent sore throat. If the attack be severe some malaise, anorexia, and drowsiness will exist.	1. *Premonitory symptoms.*—In many cases none, even with a copious eruption; neither headache, nor vomiting, nor catarrh, nor cough, but frequently slight sore throat. If the attack, however, be severe there may be pronounced malaise for some hours, with headache, anorexia, drowsiness, chilliness, and even considerable backache.	1. *Premonitory symptoms.*—If the attack be slight the patient merely feels tired and usually complains of some amount of sore throat, headache, and chilliness. There may, however, be considerable malaise, with a genuine sense of illness, accompanied by some vomiting.
2. Its *season* is spring and summer.	2. Its *season* is spring and summer.	2. Its *season* is autumn and winter.
3. The *incubation period* is usually 18 days, but with a range of from nine to 21 days.	3. The *incubation period* has a probable range of from nine to 21 days.	3. The *incubation period* is usually from two to three days, but with a range from a few hours to seven days; it very rarely extends beyond the fifth day.
4. The *eruption* is usually the first noticeable symptom. Its appearance is that of minute rosy red dots, not patches. It shows itself first behind the ears and on the scalp and face, especially on the oral circle; from these situations it extends to the neck and the chest and ultimately covers the entire body. The minute dots become larger and gradually coalesce, forming patches of the bat's wing pattern, which so extend and alter in colour as to be indistinguishable from measles.	4. The *eruption* is usually the first noticeable symptom and will cover the whole body with a considerable diffuse rash in a very few hours. The hue is a bright rosy red and the eruption is raised somewhat from the surface of the skin. The sensation of heat of the skin to the touch, even where the rash is very full, is much slighter than in scarlet fever.	4. The *eruption* is diffuse, dusky red, papular in character, and originates behind the ears. It presents a goose-flesh appearance. It does not occur in isolated dots at any stage; nor in patches which are raised and have well-defined margins. It appears early about the clavicles and on the chest and the covered parts of the body. The rash is rarely so full at an early period as in the fourth disease and the skin is markedly burning to the touch.
5. *The throat.*—The fauces look dry, with a dark, motley, red hue.	5. *The throat.*—The fauces are usually swollen and reddish, assuming a velvet appearance, but this condition bears little relation to the extent of the rash.	5. *The throat.*—The appearance of the fauces may vary from the most insignificant affection to an intense dusky redness, with marked swelling, showing sometimes white spots of inspissated secretion; and the severity of the throat affection bears usually a distinct relation to the skin eruption.
6. *The eyes.*—The conjunctivæ are pink red and suffused.	6. *The eyes.*—The conjunctivæ are pink and suffused.	6. *The eyes.*—Normal.
7. *The glands.*—The lymphatic glands throughout the body are enlarged, tender, and hard, like peas, notably the posterior cervical, the axillary, and the inguinal.	7. *The glands.*—The lymphatic glands universally are enlarged, hard, and tender, and feel like peas, though less manifest than in rose-rash. Those mainly affected are the posterior cervical, the axillary, and the inguinal.	7. *The glands.*—The lymphatic glands of the throat and neck can scarcely be detected during the first few days; but subsequently they may be enlarged in proportion to the severity of the faucial affection. This, however, creates no difficulty, as the axillary and inguinal glands are not so involved as in rose-rash.
8. *Desquamation.*—There may, perhaps, be a little branny desquamation, but frequently there is none.	8. *Desquamation.*—The desquamation may be slight, or as complete as possible, even extending to a general peeling of the hands and feet. But the desquamation bears no relation to the intensity of the eruption, for it often happens that a very full eruption may be followed by little or no desquamation, and what does occur disappears in a week or two. On the other hand, a full eruption may be attended by a general peeling as free as in the worst cases of scarlet fever, but mostly in small scales rather than in flakes or sheets. A slight rash is usually accompanied by little or no desquamation. But I have never seen a case of scarlet fever with a full eruption where the desquamation did not occur eventually in sheets, the process lasting many weeks. If a series of cases be observed these abnormalities will be very apparent.	8. *Desquamation.*—The desquamation always bears a ratio to the extent of the eruption. A copious eruption signifies a free desquamation, while a scanty eruption is followed by a sparse peeling, which, however, does not cease for many weeks. It commences invariably by a peeling of the tongue on the fourth day, which extends to the lips and is followed by peeling of the face and behind the ears; one of the easiest places in which to detect the desquamation early is the ear. The desquamation occurs in pieces or shreds rather than scales, and is very free about the hands and feet, lasting for many weeks. At the commencement of the peeling circles of desquamation are formed around the raised papillæ, though I have once seen this state in the fourth disease where the peeling was excessive.
9. *The kidneys.*—They are rarely affected and then only with a trace of of albumin.	9. *The kidneys.*—Rarely affected. Where they are involved the condition is probably that only of the albuminuria of adolescents.	9. *The kidneys.*—Albuminuria is very frequent. The liability to acute nephritis is very decided unless the treatment be appropriate.
10. *Sensations of illness.*—Even with a full eruption as intense as in measles the patient usually states that he does not feel ill, although there may be other indications to the contrary.	10. *Sensations of illness.*—Where the eruption is slight there is no illness of any kind, and where the eruption is copious the feeling of illness is sometimes scarcely apparent, although I have seen boys really ill from this disease.	10. *Sensations of illness.*—In slight cases there is no apparent illness, but I have never seen a case with a severe eruption where the patient was not really, and also sensibly, very ill.
11. *The tongue.*—It is clean or slightly furred and never coated with a thick, white fur, which peels on the fourth day.	11. *The tongue.*—The tongue is clean or slightly furred and never coated with a thick white fur, which peels on the fourth day, leaving the tongue raw.	11. *The tongue.*—If the case be slight there may be no early signs, but in a well-marked case the tongue is coated with a thick white fur which, peeling off from the tip and edges on the fourth day, gradually leaves a raw red tongue, commonly termed the "strawberry" tongue.
12. *The pulse.*—It is normal or slightly increased in frequency, but always bearing a ratio to the temperature.	12. *The pulse.*—In slight cases it is normal and where the case is a well-marked one the pulse is quickened, but bears a ratio to the temperature; that is to say, where the pulse is accelerated the temperature is raised in a proportionate degree.	12. *The pulse.*—Even in slight cases the pulse is accelerated and in severe cases very greatly quickened and always out of all proportion to the height of the fever; that is to say, even with a temperature only just above normal (99° F.) the pulse will be very rapid (120).
13. *The temperature.*—This varies from normal to 103° or 104° F.	13. *The temperature.*—This varies from 98·4° to 103° or 104° F.; but even with a very extensive rash the temperature is not necessarily high.	13. *The temperature.*—This varies from 99° to 106° F., but is never increased in the usual ratio to the pulse. A full rash always means a high temperature.
14. *The course of illness.*—The symptoms, however severe, disappear in a few days, leaving comparatively little feeling of illness; where the eruption is slight there may be no illness whatever.	14. *The course of illness.*—The symptoms, however severe, pass off in a few days, leaving comparatively little feeling of illness.	14. *The course of illness.*—The illness gradually subsides in from four to seven days. Desquamation commences as eruption fades and continues for from six to eight weeks or more, and lasts longest on the hands and feet.

THE DISTINGUISHING CHARACTERISTICS BETWEEN RUBELLA (ROSE-RASH), THE "FOURTH DISEASE," AND SCARLET FEVER—(*Continued*).

Rubella (rose-rash).	The "fourth disease."	Scarlet fever.
15. *The period of infection.*—I do not know any illness which is so infectious in its earliest stage, even before any symptoms are manifest. It results from this cause that schools suffer to so great an extent from the disease when once it has found an entrance. It is less infectious in its later stage.	15. *The period of infection.*—It is not so very infectious in its earliest stage. In its later stage, even while desquamation is taking place, it is not infectious beyond two or three weeks after thorough disinfection.	15. *The period of infection.*—This disease is the least infectious of any illness during its early stage. It therefore allows time for quarantine and isolation and thus can be controlled, so that an epidemic may be prevented more readily than in any other infectious illness. After the first 48 hours the infection is very powerful, but I am not prepared to pronounce upon its duration. Until this can be ascertained the only safe rule is the assumption that it may last as long as desquamation itself, although I am quite clear that this is inaccurate.
16. *Protection.*—The attack affords no protection against measles, the "fourth disease," or scarlet fever.	16. *Protection.*—The attack affords no protection against scarlet fever or rose-rash.	16. *Protection.*—An attack affords no protection against the "fourth disease" or rose-rash.
17. *The duration of infectiveness.*—From 10 to 14 days where efficient disinfection is in force.	17. *The duration of infectiveness.*—From 10 to 14 or even 21 days where efficient disinfection is in force.	17. *The duration of infectiveness.*—From six to eight weeks or more—i.e., when the desquamation has ceased. But I am far from believing that the infection lasts so long after efficient disinfection, though at present I can adduce little proof.
18. *Sequelæ.*—Practically none.	18. *Sequelæ.*—Practically none, but I have seen the submaxillary glands enlarged.	18. *Sequelæ.*—Nephritis; suppuration of the submaxillary lymphatic glands and others; otitis; rheumatism; endocarditis.
19. *Termination.*—Usually complete recovery in a fortnight.	19. *Termination.*—Usually complete recovery in a fortnight.	19. *Termination.*—Usually complete recovery ensues, but sometimes a prolonged convalescence on account of the sequelæ; but the disease shows a high mortality in the very young.
20. *Treatment.*—The patient requires about five days in bed, followed by three days indoors; then about six days in the fresh air; and after complete disinfection he may safely mix with others. *Abortive* cases of rose-rash are frequent and are responsible to a large extent for the spread of this disease. The difficulty is to grasp them, as no actual illness occurs. 1. *Pink eyes.*—There is a group of cases of epidemic roseola which have no symptoms that I have yet ascertained except pink conjunctivæ. And these cases, while capable of passing the illness on to others, are immune against a subsequent attack themselves. 2. There is another group of cases of epidemic roseola which I believe—but I cannot at present advance beyond belief, for I have not yet satisfied myself by actual proof—may occur without showing any symptoms beyond slight feverishness and enlargement of the lymphatic glands throughout the body.	20. *Treatment.*—The patient may be permitted to get up on the fifth or sixth day or as soon as his strength permits, irrespectively of the desquamation and without danger from sequelæ. He then requires three or four days indoors followed by five or six in the fresh air, and may safely join his schoolfellows at the end of from 14 to 21 days, notwithstanding desquamation, provided the disinfection has been thorough.	20. *Treatment.*—Every case of scarlet fever, however slight, requires 21 days of absolute confinement to bed. The patient should be clothed in a flannel night-shirt and the skin daily greased with carbolic or eucalyptus oil. No food should be given for the first week except milk and farinaceous food, however mild the illness, in order to guard against nephritis. The patient should not be permitted to join his friends for six or eight weeks, but I do not think it essential to isolate cases until all desquamation has ceased from the hands and feet, for this process sometimes occupies several additional weeks. I have acted on this assumption for many years without harm, even transferring boys to their own homes. Of course, complete disinfection is imperative.

The above analysis (Tables II. and III.) of this remarkable epidemic conclusively shows: (1) that two distinct infectious diseases were existent in the school at the same time; (2) that these diseases were scarlet fever and what I then termed the scarlet fever variety of rose-rash, but in reality this "fourth disease"; and (3) that the "fourth disease" commenced on Feb. 4th and the scarlet fever on the 24th.

I was further able to discriminate, mainly guided by the periods of incubation, as well as by the existing and the pre-existing symptoms: (1) that some boys had scarlet fever only; (2) that others had the "fourth disease" only; (3) that one had scarlet fever and subsequently the "fourth disease"; and (4) that others had the "fourth disease" followed by scarlet fever.

The satisfaction of unravelling so very intricate a problem was marred by the deaths of the two boys (No. 22 and No. 28) I have mentioned above from scarlet fever.

Since this epidemic I have had another instance of this "fourth disease" in a boy who had previously suffered from scarlet fever in 1894.

CASE 32.—A boy, aged 14 years, was isolated on June 2nd, 1900. Sore-throat and rash appeared on June 3rd. The throat was swollen and velvety. The tongue was furred but not coated. A copious rash ensued which became brick-red as it faded. No desquamation of the tongue or skin occurred, though the latter was rough. The posterior cervical glands were very tender and enlarged. The maximum temperature was 100·4° F., and the maximum pulse was 84. There were, therefore, two cases of the "fourth disease" out of 32 (6·25 per cent.) who had previously had scarlet fever. This epidemic proves incontestably that, besides scarlet fever, there is another malady, which I have provisionally named the "fourth disease," and that the one affords no protection against the other.

III.—The following facts connected with an epidemic of this "fourth disease," where 42·1 per cent. of the patients had already suffered from rose-rash (rubella), demonstrates its distinctive character and consequent classification.

This epidemic occurred at Rugby—commencing on March 13th, 1900, and terminating on April 1st, 1900—and it affected 19 boys. The illness resembled scarlet fever more closely than any other series of cases I had yet seen, due not only to the marvellous resemblance between the rash and that of scarlet fever, but also to the copious desquamation of the skin which in some instances succeeded. It was clearly, however, an epidemic of the "fourth disease" alone. In this series 42·1 per cent. had already suffered from rose-rash (some within the preceding 12 months), so that it was evident that these diseases were different and destitute of mutual protectiveness. On April 3rd the school dispersed for the vacation and each parent was advised that, notwithstanding the resemblance, the malady was not scarlet fever. I only heard of one case occurring during the vacation which was diagnosed as scarlet fever; but one parent—a medical man—whose two sons were at the school suffering from this "fourth disease" was so convinced when he saw them that this malady was scarlet fever that he desired me to keep them in bed, to avoid feeding them, and to examine their urine daily, which I had done, I need scarcely add, in every instance. On May 12th this gentleman addressed to me this exceedingly kind and handsome letter: "I feel I ought to write and thank you,

as a parent, for the firm and correct stand you took about the cases of our boys last term. It required not less courage than knowledge to stand out against the temptation to call those cases scarlet fever and to involve many parents and friends in a prolonged period of anxiety and considerable expense. This was especially so with our boys, both of whom had had German measles (rubella). Our younger son at Rugby desquamated, as you know, as freely as any scarlet fever case and continued desquamating for six or seven weeks. The elder had just a little on the soles of his feet after five or six weeks. They mixed freely with others, including our little boy of three and a half years of age, soon after their return from Rugby."

I append some few notes of the cases and I confess that I never observed such extensive peeling except in scarlet fever, but it is a curious fact, and one that may prove of value, that the two boys who desquamated most had in past years suffered from general eczema and had naturally a rough dry skin.

I now furnish a brief *résumé* of the 19 cases of this series.

1. *Premonitory symptoms.*—There were practically none and no boy admitted illness until the rash appeared, but on inquiry admission of general malaise was elicited.

2. *Vomiting.*—In Case 49 free vomiting occurred in the night and a very full rash was discovered in the morning. This vomiting arose, however, from his having eaten freely of sweets in the evening, which probably disagreed with him as the disease disclosed itself. But as the vomiting was severe and the rash very marked indeed I made a full investigation and watched throughout for evidence of scarlet fever. The maximum temperature throughout his illness was only 99·6° F.

3. *Eruption.*—Really the first symptom to attract the attention of the sufferer was the rash which in nearly every case was very full and quite characteristic of scarlet fever. In fact, if ten experts had inspected the skin and made no other investigation all would have diagnosed the eruption as that of scarlet fever.

4. *Throat.*—The fauces were red and swollen, but occasioned so little discomfort that complaint was rarely made, and the condition was only discovered on inquiry or inspection. However severe appeared the eruption—and in many cases it resembled the worst eruption in scarlet fever—the throat did not assume anything like the same condition as is so usual in scarlet fever.

5. *Desquamation.*—In some cases the skin became merely rough; in most instances there was free desquamation of small scales; while in others the peeling was equal to the worst I have ever noticed in scarlet fever. In Case 34 the skin was detached in large pieces in certain regions; for instance, in the groin and front of the abdomen it peeled off in sheets. Desquamation lasted six or seven weeks. This boy had naturally a rough dry skin and had previously suffered from general eczema. In Case 35 an extent of desquamation occurred which rarely takes place even in scarlet fever. It was detached in sheets from the whole of the body and the toes shed their skin like the finger of a glove in one piece; the heel also peeled almost in one piece and certainly an area of more than an inch square was detached at once. The pieces had to be cut off, as they caught in the bed-clothes and caused pain where the skin was adherent. In Case 39 the skin peeled from the toes in pieces of the size of a shilling and elsewhere in scales. In this "fourth disease" the desquamation bears no relation to the intensity of the eruption; several of these cases with the fullest and intensest eruption were followed by very scanty desquamation. The peeling may continue as long as in scarlet fever although it is apparently innocuous.

6. *The tongue.*—The tongue was furred throughout, which cleaned as all furred tongues do. In no case did the tongue peel on the fourth day, as is so pathognomonic of scarlet fever in both mild and severe attacks.

7. *The glands.*—The lymphatic glands universally were enlarged, hard, and tender, sometimes excessively tender, as in Case 32, but I do not think that they are so markedly affected as in rose-rash. My experience is that the lymphatic glands are always enlarged and tender whenever a copious eruption occurs on the skin from any disease.

8. *Temperature.*—The average temperature was 101° F.; but it ranged from 99·4° to 104·2°. This last temperature occurred in Case 45 where the eruption was scanty, with merely a red, swollen, velvety throat, though the posterior cervical glands were very large and tender. The temperature almost invariably became normal on the third or fourth day.

9. *The pulse.*—In no case, except in Case 45, did it reach 100—a signal contrast to the accelerated pulse of scarlet fever.

10. *The kidneys.*—In no instance did albuminuria arise, although all the sufferers, except the two sons of the medical man I have mentioned, were fed freely as soon as the slight fever (which occurred from the third to the fifth day) had disappeared, and the boys were removed from bed as soon as the rash had subsided, notwithstanding the desquamation.

11. *Incubation period.*—This I was unable to ascertain in the present series of cases, since several of them occurred simultaneously, and I could not discover any connecting links between the sets. My impression is that the illness originated in a boy who was attacked very slightly and who, without my seeing him, continued in his work with it the whole time. I shall hope to ascertain this fact more accurately in some subsequent series. The incubation varies, I believe, from nine days to 21 days.

12. *The duration of infectiveness.*—This lasts from 10 days to 14 days or even 21 days, where efficient disinfection is in operation. The continuation of desquamation is apparently of no moment as a cause of infection or sequelæ.

13. *Previous scarlet fever.*—Previous scarlet fever had not occurred in any instance.

14. *Previous rose-rash.*—Eight boys had already suffered from rose-rash out of this series of 19 cases, or 42·1 per cent.

Since this last series of 19 cases (33 to 51) I have seen one patient (aged eight years) in a private residence (Case 52). This lad developed the malady on June 1st, 1900, when he had suffered from rose-rash, which was prevailing at his school, in January, 1900, so that in 20 consecutive cases of the "fourth disease" nine (or 45 per cent.) had previously had rose-rash (rubella) which is reasonably conclusive evidence that they are two different diseases (Table IV.). Further, it is this malady which, mistaken for scarlet fever, accounts for the prolonged period of incubation which is assigned to the latter disease by some authors; while, on the contrary, it cannot be too emphatically affirmed that the period of incubation of scarlet fever is usually two days, rarely exceeds five days, and never extends beyond seven days.

I conceive that I have now adequately proved that a definite disease exists which I have temporarily designated the "fourth disease." For I have shown:—

1. That although its resemblance is so close to scarlet fever in many features it cannot possess any affinity with that disease inasmuch as both diseases occurred concurrently in the same epidemic.

2. That some of the sufferers had both diseases in the same epidemic.

3. That one patient had scarlet fever followed by the "fourth disease."

4. That several had the "fourth disease" followed by scarlet fever.

5. That although the "fourth disease" has been confused with rose-rash and regarded as a mere variety of rubella, this conclusion is fallacious, since nearly one-half the cases in an epidemic had already had rose-rash within a year or two, which, according to Cullen's established law, is incredible.

6. I have purposely refrained from attaching a name to the disease in order to avoid the anomalous description of the same disease under an indefinite number of terms, as in the case of its ally, which has been variously designated as "rubeola notha," "rötheln," "rubella," "German measles," "epidemic roseola," and "rose-rash." The distinguishing features of rubella, of the "fourth disease," and of scarlet fever will be found in the appended tables.

Rugby.

NEW WORKHOUSE INFIRMARY FOR MERTHYR TYDVIL.—The new workhouse infirmary for Merthyr Tydvil is now completed and is occupied by the patients. The female wards contain 42 beds and there is also a lying-in ward of 10 beds. The men's wards provide accommodation for 70 beds. The expenditure has been over £13,000, exclusive of the furnishing, which amounted to £1300. Mr. Preston Thomas, one of the inspectors under the Local Government Board, at a recent meeting of the Merthyr Board of Guardians congratulated them upon the fact that their infirmary was one of the finest in Wales.

A NOTE ON THE RESULTS OBTAINED BY THE ANTI-TYPHOID INOCULATIONS IN THE BELEAGUERED GARRISON IN LADYSMITH.

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BY the kind permission of Surgeon-General Jameson, M.D., C.B., I am enabled to publish the following officially collected statistics with regard to the results obtained by the anti-typhoid inoculations in the military garrison during the siege of Ladysmith.

TABLE I.—*Results obtained by the Anti-Typhoid Inoculations in the Case of the Officers and Men of the Military Garrison during the Siege of Ladysmith.*

—	Number under observation.	Number of cases of enteric fever.	Proportion in which attacks stand to total number of men in group.	Number of deaths from enteric fever.	Proportion in which deaths stand to total number of men in group.	Proportion in which deaths stand to total number of attacks in group.
Not inoculated	10,529	1489	1 in 7·07	329	1 in 32	1 in 4·52
Inoculated ...	1,705	35	1 in 48·7	8	1 in 213	1 in 4·4

In addition to the above summary of results, obtained on officers and men combined, the figures relating to officers separately are also given in the official statistics. With regard to these last it may be pointed out that quite apart from the fact that these figures relate to a very small group of persons (44 in number) the figures considered as statistics are probably fallacious owing to the fact that the group of inoculated officers (consisting as it must have done almost exclusively of young men at the most susceptible age) is compared with a group of officers which includes all the older and less susceptible men and the men who have already had typhoid fever. The figures referred to are none the less subjoined with a view to conforming to the arrangement adopted in the official statistics.

TABLE II.—*Results obtained by the Anti-Typhoid Inoculations in the Case of the Officers of the Military Garrison during the Siege of Ladysmith.*

—	Number under observation.	Number of cases of enteric fever.	Proportion in which attacks stand to total number of men in group.	Number of deaths from enteric fever.	Proportion in which deaths stand to total number of men in group.
Not inoculated ...	171	43	1 in 4	5	1 in 34·2
Inoculated	44	9	1 in 5	2	1 in 22

In drawing inferences from the figures in this table it is to be borne in mind that the erroneous inclusion or exclusion of a single case, or a difference in the event in the case of any patient included in the category of the inoculated, would sensibly alter the present aspect of the table.

The same circumstance must be borne in mind in connexion with any attempt to base a comparison of the case mortality in inoculated and uninoculated upon the figures in Table I. For it will be manifest that in no circumstances can an estimate of case mortality be safely based on a series of only 35 cases, and least of all would it be permissible to do this under conditions such as those of Ladysmith during the siege, where many other factors in addition to the severity of the attack must have determined the favourable or unfavourable event of the cases. It would, however, appear probable, in view of the figures given in the table, that the case mortality was not influenced by the inoculation. On this subject further light must be awaited, especially as it would appear from certain statements which have emanated from the seat of war that the disease generally runs a milder course in the inoculated.

The question of case mortality is, however, quite subordinate in interest to the question as to how far the figures presented in Table I. enable us to estimate in quantitative terms the reduction in incidence and mortality which can be achieved by the process of anti-typhoid inoculation.

To answer this question it will be necessary to inquire, on the one hand, whether there were any circumstances other than inoculation which may have tended, either to diminish the incidence of typhoid fever among the inoculated in Ladysmith, or unduly to swell the roll of typhoid fever among the inoculated.

In connexion with the former question the only point which comes up for consideration is the question as to whether the inoculated were more favourably circumstanced in the matter of the sanitation of their camps than the uninoculated. No detailed data for the determination of this question are at present available. But this will be seen to be unimportant, in view, first, of the fact that there was in each regiment and corps an uninoculated majority who must equally with the inoculated have benefited or suffered from the sanitary or insanitary condition of the various camps; and, secondly, of the fact that the inoculated who were attacked were drawn from 12 different corps and regiments. It may therefore be assumed that the inoculated and uninoculated were equally exposed to the risk of infection.

The question as to whether there were any circumstances which tended unduly to swell the roll of typhoid fever among the inoculated is one which requires to be treated at somewhat greater length. The following points must be kept in view:—1. So far as is known the men who are set down as inoculated were with hardly an exception only once inoculated. It seems probable from the fact that only two cases among twice inoculated persons have as yet come to my knowledge that second inoculation confers a considerable additional protection. 2. It is possible that certain of the officers who are set down as inoculated may have been inoculated with anti-typhoid serum and not with a vaccine consisting of a sterilised typhoid culture. Two or three instances have been reported to me where this error was committed in the case of officers proceeding to South Africa. In the statistics now in question the date and place of inoculation are in the case of five out of the nine officers attacked set down as unknown. 3. It is possible in the case of the men as distinguished from the officers that re-vaccination against small-pox, which, like anti-enteric inoculation, was in many cases carried out on board the transports may in certain instances have been confused with the latter inoculation. Instances of this confusion have already several times come to my knowledge. 4. Lastly, it is possible that owing to the exigencies of military service or owing to other reasons the full prescribed dose of typhoid vaccine may not in all cases have been injected. Instances of the employment of the vaccine in fourfold reduced doses have come to my knowledge. It is conceivable, but there is nothing either to support or rebut the suggestion, that some reduction of the dose may have been found necessary in the case of the Liverpool Regiment, which was inoculated (presumably, as in the case of other regiments, only very partially inoculated) at Ladysmith on the eve of the outbreak of hostilities. At any rate, it is noticeable that this regiment furnished 13 cases of enteric fever among the inoculated men, whereas the whole rest of the garrison of Ladysmith furnished only an equal number of such cases.

In view of the above points, regarding which there is not at present any information available, it is at present impossible to determine precisely to what extent the inoculated were protected by inoculation. But the results set forth in Table I. would appear to be distinctly encouraging, inasmuch as they show that the proportion, on the one hand, of attacks, and on the other hand of deaths, from typhoid fever was seven times smaller in the inoculated than in the uninoculated. And it may be borne in mind that if the number (no doubt a considerable one) of men who had previously suffered from typhoid fever had been subtracted from the number of the uninoculated, as might quite legitimately have been done, the statistics would have borne an even more favourable aspect.

Netley

ILLUSTRATIONS OF VASECTOMY OR OBLITERATION OF THE SEMINAL DUCTS RELATIVE TO HYPERTROPHY OF THE PROSTATE AND BLADDER ATONY.

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WHEN sufficient grounds were furnished for asserting that the nutrition and growth of the prostate whether normal or hypertrophied might be importantly influenced by obliteration of the seminal ducts or by removal of the testes[1] the first stage may be said to have been reached in a series of observations which will probably prove of increasing value in practical surgery. Though experience is not yet sufficiently ripe upon this point there are good reasons for believing that a vasectomised or castrated male is not liable to undergo hypertrophy of the prostate in the ordinary acceptation of the term. As this point, as now seems probable, becomes more fully determined not only will a fact of great pathological importance be established, but it will be possible to indicate how by means of a simple and safe operation one of the most serious troubles of advanced life may be averted or controlled. I have reserved for this paper some illustrations of vasectomy or, more strictly speaking, of obliteration of the seminal ducts by torsion, as described in my last articles,[2] in its application to the treatment of prostatic hypertrophy. Statistical information gathered from the mere collection of a number of cases having but little in common is not of much assistance in a matter of this kind where the conditions and circumstances are so varied. In taking my results of vasectomy I find they permit of being grouped as follows: First, where the effects are known to have been good, sufficient, and enduring; secondly, where they have been good but restricted to certain conditions: and, thirdly, where they are alleged to have been inadequate or negative. The question of mortality arising from the operation is not one requiring consideration, as in the series of over 100 cases referred to previously[3] I stated that I have never seen harm follow.

The first group may be said to include cases of prostatic obstruction pure and simple without any other structural complication. Here the bladder is in no sense secondarily implicated structurally and is capable on the removal of the obstacle in front of it of both holding and expelling its contents. It is in this class of cases that shrinkage of the enlarged prostate, however induced, speedily leads to the restoration of the function of micturition in the fullest sense of the term. This group is best illustrated by cases where for some special or pressing reason the obliteration of the vasa was brought about at an earlier period in the history of prostatic obstruction than is usual. Hence this group is less numerous than the succeeding one where catheter life or the systematic use of this instrument had been resorted to previously. The following cases are selected.

A man, aged 68 years, who was seen in 1896, was suffering from the ordinary symptoms of enlarged prostate—namely, frequent micturition, more especially at night, some degree of residual urine, and occasionally incontinence, the diagnosis being confirmed by rectal examination. He had been advised to use a catheter but could not do so conveniently as he had lost an arm. Double vasectomy was performed, with an interval of 10 days between each section. I saw him nearly three years afterwards; the prostate was reduced in size. He was quite well and had no occasion for the catheter.

About the same time I divided the vasa of a man, aged 65 years, whose work was greatly interfered with by frequency of micturition due to enlarged prostate. He also had been advised to use a catheter. He was treated in the same way as the patient in the preceding case with a similar result and was examined 18 months afterwards.

In 1897 I saw a man, aged 65 years, who in the course of his occupation travelled much by railway and otherwise. He had an enlarged prostate and much frequency of micturition for which he was advised to use a catheter. As this meant giving up his livelihood vasectomy was practised with good results and 18 months afterwards he reported himself as being quite well without requiring the catheter.

Early in 1898 I saw a patient in consultation in whose case it had been necessary to tie in a catheter for retention of urine caused by a large prostate. This was so intolerable to him that I suggested vasectomy, which was performed. I have heard on several occasions that he still remains in good health and is able to urinate normally. Six months after the operation I found the prostate much reduced in size.

In 1893 I operated upon a man, aged 67 years, for stone by litholapaxy. There was also some enlargement of the prostate. He remained well till 1897 when symptoms of considerable enlargement developed, and though he had no recurrence of stone he gradually became entirely dependent upon the catheter and was liable on slight provocation to attacks of cystitis and epididymitis. The frequent use of the catheter greatly interfered with his capacity and desire for an active outdoor life and he was compelled to give up hunting and other exercises. In 1898 I divided both his vasa in the usual way with the result that his prostate symptoms gradually disappeared and he resumed his hunting during the whole of last winter as he had previously done. He was able to give up his catheter, using it once in the 24 hours for washing out. He had accustomed himself to the latter as a precautionary method against stone, and though the process, he admitted, was hardly necessary he did not like to give it up.

This appears to be the first published series of cases of prostatic hypertrophy treated by operation in which the object of preserving the normal function of micturition as opposed to an artificial one as illustrated by what is known as catheter life, has been successfully demonstrated. Before leaving this group I would observe that in every case it was explained that the section or division of the vasa might interfere with sexual possibilities. It may, I think, be claimed that in all these instances, and in others that might be mentioned, whatever influence, if any, was exercised on the sexual act the natural function of micturition was preserved to the person operated on and the necessity for the permanent use of a catheter averted. When any question has arisen under these circumstances, so far as my experience goes, relative to whether the urinary or the sexual function should receive first and paramount consideration it has invariably been decided by the patient in favour of the former.

I pass to the second group of cases where I have described the effects following as being good but restricted to certain conditions. These include instances where structural changes in the bladder have supervened upon prostatic obstruction and where catheter life, or the necessity for it, has been more or less developed. This group provides by far the greater proportion of cases to which this class of operations has been recently applied. In a previous paper[4] I showed that there were certain structural effects which followed in the wake of prostatic and other forms of obstruction to the escape of urine by the natural passage which were irrecoverable from. These have reference to the bladder as a reservoir capable of self-expulsion. Hence in the consideration of the class of operations of which vasectomy is a type cause and effect must not be confused. The prostate may be rendered in these ways incapable of obstruction any longer, but this by no means implies that the bladder can be made to expel. And yet the realisation of the former by these means has in this way proved in many instances, which I will proceed to illustate, an inestimable boon.

In November, 1895, I operated on a man, aged 70 years, with a very large prostate and increasing difficulty in catheterism which sometimes required hot baths and opiates before it could be effected. He had shaky hands which increased the difficulty. I advised a double vasectomy. 12 months after this he wrote to me: "I certainly am very much better than I was before the operation, and so long as I am quiet and able to carry out my regular treatment I get on very comfortably."

Another case was that of a man, aged 75 years, with a very large prostate and increasing difficulty in passing his instrument. Double vasectomy was performed in 1898. He soon found that he could pass his catheter quite easily and he again wintered abroad last year with much comfort. He had been previously obliged to forego this change by reason of catheter difficulties.

A man, over 60 years of age, whom I saw in consultation

[1] Surgery of the Hypertrophied Prostate, by Dr. J. W. White, Transactions of the American Surgical Association, 1893.
[2] THE LANCET, August 5th, 1899, p. 331, and May 5th, 1900, p. 1275.
[3] THE LANCET, May 5th, 1900, p. 1275.
[4] THE LANCET, May 5th, 1900, p. 1275.

and in whose case I advised vasectomy for enlarged prostate with frequent attacks of epididymitis which confined him to bed, has entirely got rid of the latter painful complication by the obliteration of his ducts and is now again in the active practice of his profession.

The next case to which I shall refer is an instance of the application of vasectomy as an adjunct to other surgical purposes. It was that of a man, aged 70 years, whom I operated upon for stone in the bladder in 1893. The prostate was so large that I had unusual difficulty in performing the ordinary operation of litholapaxy, and after removing a considerable portion of the stone in this way I had to abandon it without effecting a complete removal of the calculus. The patient, however, did well and was much relieved. In the meantime I divided both vasa and after six weeks' interval I repeated the crushing operation. The considerable shrinkage that was thus effected in the size of the prostate rendered this proceeding easy and complete.

For the relief of hæmorrhage arising out of difficult catheterism in connexion with prostatic obstruction vasectomy has been adopted with good effect in rendering the process easy and avoiding bleeding. This is only to be expected as the result of a process which is generally admitted as reducing the blood-supply to the parts involved. Painful catheterism arising from spasm and tension as the instrument enters the prostatic urethra may be usually relieved in this way by the general shrinkage and relaxation of the gland that follows section of the vasa. I have had several illustrations of this. For reasons such as are here illustrated and for others that might be added to the group the obliteration of the vasa has proved of much service, though the voluntary and natural powers of the bladder may have either not been restored, or have been but partially restored. Easy and safe catheterism has in this way been substituted for that which previously was painful if not also dangerous.

I will conclude with a notice of the third group of results of vasectomy, which seems to me to include the most interesting and suggestive of the series that I have here brought under notice. I refer to those instances where the results are alleged to have been, or seem to have been, inadequate or negative.

For the purposes of this paper I have made numerous inquiries by letter, in addition to other sources of information, from patients who have undergone vasectomy since 1893, when I commenced to practise it with some frequency. Amongst these is a man, now aged 81 years, upon whom I performed double vasectomy for prostatic enlargement of some years' standing early in 1897. On writing to me he informed me that he did not think that he had derived much benefit from this operation. The history of his case, however, will hardly bear out this statement. The patient had been under my observation for four years previously to this. He had considerable irritation and spasm, for which the catheter was being constantly employed. There was also so much cystitis that I then drained his bladder by the perineal route with temporary benefit. In 1896, however, his condition in these respects became worse and the bladder became very foul in spite of catheterism and washing out. In addition to this the specific gravity of the urine began to drop so as to vary from 1004 to 1007. As this condition so often precedes renal disease and uræmia in these cases of prostatic obstruction I divided the vasa early in 1897. From that time forward the urine, amongst other changes, gradually returned to a normal density and the general condition of the patient improved, though he continued to be, and still is, largely dependent on the catheter. He uses it much more easily and, as I am told by his friends, is in good general health. He doubtless failed to appreciate the renal improvement, which I have similarly observed in other instances as being probably connected with mechanical reasons. The patient doubtless measured the success of the vasectomy, as others do, relatively as to whether he could or could not dispense with his instrument, without sufficient regard to the less striking contingencies of catheter life. This patient should properly occupy a place in the second group, but I thought it better to take him at his word as one whom vasectomy had not benefited. The substitution of a good contractile bladder for one that obstruction had worn out would probably suffice to complete the cure. I will take one more instance which may properly be considered in this group from the patient's point of view, though, as with the preceding case, I decline to agree with the patient. It has its lesson to teach which may be the more conveniently learnt in this place.

A man, aged 74 years, was operated upon for stone by litholapaxy by me in 1894. The condition was complicated with a large prostate for which he had to use a catheter. The operation was not an easy one by reason of the former. He had two recurrences in the course of the two following years which I mainly attributed to the obstructing prostate, so I divided both vasa in 1896, with an interval of some weeks between each. He has had no recurrence of stone, can pass his catheter quite easily, keeps free from cystitis, goes to Scotland to fish (a sport which he previously had to abandon), and is now not entirely dependent on the catheter. For a man at the age of 80 years I should say that he was in excellent health, and yet because he is not able to dispense with the instrument entirely he is not disposed to admit that vasectomy did him much good. I am not inclined to agree with him and consequently I should put him also in the second group.

My experience in litholapaxy as illustrated in a recent series of 100 cases[5] leads me to believe that vasectomy has proved an important aid in preventing the recurrence of stone after operation when complicated with enlarged prostate. It probably effects this by providing a free and more dependent exit from the bladder as well as by diminishing the large amount of tenacious mucus which the enlarging prostate both provokes and helps to supply and which lessens materially as the gland shrinks.

I can hardly recall an instance of vasectomy or torsion of the vas for hypertrophy of the prostate where good has not followed though it may not at once be appreciated by the patient. It is not always relative as to whether or not the patient can or cannot dispense with the catheter. Nor is credit always given in this group of cases to the fact that though chronic prostatic obstruction had already caused permanent structural damage to the bladder as the organ for expelling urine and not merely containing it, the further progress of an obstructive disease was arrested by obliteration of the vasa and life was thus indefinitely preserved and rendered tolerable. Though in the case of the eye a cataract operation is successful this does not necessarily imply that spectacles can be invariably dispensed with.

In one instance benefit was slow in coming where the obstruction had previously been of a very chronic character and the bladder had become much weakened and fasciculated. It was found six months after a portion of one of the vasa had been excised and the ends ligatured in a loop that the divided ends had reunited and the continuity and use of the duct had been re-established. I have the specimen, which I subsequently excised and then torsed the freshly divided ends separately. Benefit followed upon this. The specimen was carefully examined for me by Mr. J. G. Pardoe. I could hardly think, unless I had seen it, that this was possible; at all events I have not met with another instance.

In conclusion, surgery may be said to be entering upon a new phase of research for therapeutical purposes. Thyroidectomy and oöphorectomy have produced results so remarkable and changes in the organism so profound that complete removal, except for the express purpose of saving life, is in the first instance condemned as totally inadmissible, and in the second instance is deprecated by a large and constantly growing number of surgeons.

The effect of castration on youthful males for the purposes of the harem has been known for centuries. The effect upon adult and aged men has only recently been investigated. In children the results are not dangerous to life; in the aged, apart from the shock of such a severe surgical mutilation, they are, in some cases at all events, dangerous to reason if not to life.

The explanation offered by physiology is the well-known theory of "internal secretion." This theory, proved so strikingly correct in the case of the thyroid, may, although the testis is not a ductless gland, be equally applicable to the latter organ. In any case it is incontestible that most serious results follow total removal of both testes, whereas I can confidently assert from my seven years' experience of the operation that double vasectomy, performed in the manner which I have described in a previous paper,[6] causes no untoward results whatever.

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[5] THE LANCET, Nov. 12th, 1898, p. 1250.
[6] THE LANCET, May 5th, 1900, p. 1275.

ON IMMUNITY AGAINST PROTEIDS.

BY WALTER MYERS, M.A., M.B. CANTAB., B.SC. LOND.,
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PRELIMINARY ACCOUNT.

IT is assumed in each of the two theories of immunity which are dominant at the present time—viz., Ehrlich's "seitenkette" or side-chain theory and Metchnikoff's phagocytic theory—that immunity is merely a special case of assimilation. According to these views, for every substance assimilated by a living organism there is present somewhere in that organism a specific anti-substance, and in fact the chief difference between them is whether the anti-substances are produced by leucocytes or by other cells of the body. From the standpoint of immunity the toxic action of a toxin is a matter of accident, indeed of indifference, since a toxin does not produce its antitoxin by virtue of its toxic power, but because on introduction into the animal body in such a way that its immediate destruction is avoided it is assimilated. With the object of obtaining evidence as to the validity of this assumption the following experiments were undertaken with a view to ascertaining what changes, if any, are to be observed in the blood serum when proteids of various classes are introduced into the animal body in steadily increasing amounts. In order to avoid destruction by the digestive ferments of the alimentary tract these substances were not given by the mouth, but were injected intra-peritoneally. As experimental animals rabbits were used and the proteids employed were the following: (1) crystallised egg albumen from the white of fowl's egg; (2) serum globulin from the sheep; (3) serum globulin from the bullock; and (4) Witte's "peptone."

1. *Crystallised egg albumen.*—This was prepared from the white of fowl's eggs by the method recommended by Hopkins and Pinkus.[1] According to Hopkins this purified proteid is to be regarded as a single chemical substance. After repeated intra-peritoneal injections of this albumen continued for two months, the serum of rabbits acquired the power of forming a dense precipitate when added to solutions of crystallised egg albumen. The formation of this precipitate occurred at the ordinary temperature of the laboratory, but was accelerated at 37° C.[2] In very many control experiments neither the serum of normal rabbits nor any of the immunised rabbits mentioned below ever had this action. This precipitate is soluble in 2 per cent. sodium chloride solution and the solution gives the ordinary proteid reactions. The serum of a rabbit treated with egg albumen from the fowl forms a slight precipitate with the albumen from the white of duck's eggs, but not nearly so much as is thrown down from solutions of the same strength of fowl's albumen. I was unable to obtain duck's egg-albumen in a crystalline form, and the precipitation which occurred with it is doubtless due to the presence in small quantity in it of the albumen present in fowl's egg or of a closely allied albumen. The serum thus obtained has no precipitating action on the globulin prepared from sheep's serum, nor on that from bullock's serum, nor on serum albumen from the sheep or bullock. It was likewise without precipitating action on Witte's "peptone." By these injections, therefore, a specific anti-body had been produced—an *anti-proteid* or *precipitin* which had the power of throwing down the egg albumen into a solid insoluble state. The chemical nature of this reaction remains to be investigated and we may conveniently call the precipitate formed by the action of the precipitin the *precipitum*.

2. *Serum globulin from the sheep.*—Sheep's serum was half saturated with ammonium sulphate at laboratory temperature; the precipitate after filtering was washed with saturated ammonium sulphate, dissolved by the addition of water, and again precipitated by semi-saturation with ammonium sulphate. After several precipitations the globulin was dried on glass plates at 37° C. In this case also continued intra-peritoneal injection led to the appearance in the serum of a precipitin. This antiglobulin serum had no action on egg albumen or upon Witte's "peptone," although with the similarly prepared globulins from bullock's serum a small precipitum was obtained after 15 hours at 37° C.

The precipitum from sheep's globulin is soluble in 2 per cent. saline solution and gives the ordinary proteid reactions. The serum of the rabbit immunised against sheep's globulin had also acquired another property—namely, that of agglutinating the red corpuscles of the sheep. In order to be sure of removing all traces of serum the defibrinated blood was diluted ten times with saline solution (0·8 per cent.). After centrifugalisation the clear fluid was removed and the process repeated several times. Finally, a suspension was made of one part of blood in 40 of saline solution.[3] The agglutination was unmistakeable after the mixtures had been for an hour in the incubator at 37° C. The agglutinating action was only present in the anti-sheep's globulin serum, it was absent in the sera obtained by immunisation against bullock's globulin, egg albumen (fowl's), Witte's "peptone," and also in sera from normal rabbits. This action is doubtless due to the presence of the same, or of a closely allied, substance in the sheep's red corpuscles and in the "globulin" from sheep's serum as above prepared.

This anti-globulin serum also clumps the washed red corpuscles of the fowl. I have not found this agglutinating power in any other sera obtained from normal or other rabbits. It follows from these facts that the product here called "sheep's globulin" is a mixture of substances. The main portion of the precipitum given by its precipitin is formed from a substance which is not present in the "serum globulin" of the bullock. One substance present in small quantity in the sheep's globulin is, however, also present in bullock's globulin, since the precipitin of sheep's globulin gives a small precipitum with bullock's globulin. This substance common to the two globulins is not present in red corpuscles of the sheep or fowl, since the precipitin for bullock's globulin does not agglutinate these corpuscles. Further, we must suppose that there are two other substances in the serum globulin of the sheep, one present in fowl's red corpuscles and the other present in those of the sheep, since, as the following experiment shows, immunisation against sheep's globulin leads to the appearance in the serum of two distinct agglutinins, for sheep's and for fowl's corpuscles respectively. If the serum of a rabbit immunised against sheep's globulin be allowed to agglutinate washed corpuscles of the sheep the clear fluid left above the corpuscles will not now agglutinate fresh corpuscles of the sheep if sufficient corpuscles have been used on the first instance. But this fluid still has the power of agglutinating fowl's corpuscles. And conversely after anti-globulin has agglutinated fowl's corpuscles, it has lost the power of agglutinating fresh fowl's corpuscles, but will still agglutinate those of the sheep.

3. *Serum globulin from the bullock.*—This product was prepared in the same way as the serum globulin from the sheep. And here, too, a specific precipitin made its appearance in the serum of the immunised animal. And just as the precipitin for sheep's globulin gives rise to a slight precipitum with bullock's globulin, so the precipitin for bullock's globulin causes a slight precipitum with sheep's globulin; in each case the precipitum is very much smaller than that given with the globulin by which the precipitin was produced. As has been mentioned, the precipitin for bullock's globulin did not agglutinate sheep's corpuscles or bullock's corpuscles.

4. *Witte's "peptone."*—Commercial Witte's "peptone" was dissolved in physiological saline solution, boiled, cooled, and filtered. Immunisation led to the appearance of substances in the serum which produced a precipitum in Witte's "peptone" at 37° C. Control experiments gave absolutely negative results. Most remarkable was the fact that the precipitum after careful washing with 0·8 per cent. saline solution and after solution in 2 per cent. saline did not give the biuret reaction, though it gave the other general reactions of proteids. The fluid removed after centrifugalisation gave a distinct biuret reaction. Here, then, the precipitum belonged to an entirely different class of proteids from the original body.

The effect of heat on the precipitins of egg albumen, of

[1] After several washings and re-precipitations the precipitate was dried on plates. A mixture of ammonium sulphate and proteid crystals was thus obtained. Journal of Physiology, vol. xxiii.

[2] It is necessary to remove any excess of ammonium sulphate by dialysis or the precipitation will not take place.

[3] The serum of rabbits lakes the corpuscles of the sheep. This hæmolytic action may be abolished by heating the serum to 50° C. for half an hour. In all the agglutinating experiments mentioned in this paper the sera were thus heated.

the serum globulins of the bullock and sheep was similar in so far that heating to 56° C. for half an hour led to no appreciable weakening of their action. On the precipitins for Witte's "peptone" heating to 58° C. for half an hour had a marked weakening action, although the precipitins were not entirely destroyed. Adding normal rabbit's serum markedly increases the precipitating action of this heated serum, although normal serum itself remained quite clear with the "peptone." In this respect the "peptone" precipitin is similar to the hæmolysins and the bacteriolysins, but the number of substances involved in this reaction is so large that much further investigation is necessary before definitely contrasting this with the other precipitins.

A number of experiments were made to ascertain whether the precipitin is used up in the formation of the precipitum. A mixture of the precipitins of bullock's globulin and egg albumen was added to a solution of egg albumen. After standing at 37° C. for 15 hours the mixture was centrifugalised and the clear fluid was tested for the presence of the precipitins. It was found to give a precipitum with bullock's globulin but to give none with egg albumen. At the same time a control experiment was made with a mixture of the precipitins of egg albumen and bullock's globulin with bullock's globulin. In this case the clear fluid precipitated with egg albumen but not with bullock's globulin. Experiments of a similar kind with the precipitins of egg albumen and sheep's globulin were made, and in this case also one or other of the precipitins disappeared. From these experiments it is concluded that the precipitins are used up in the course of their action, and bearing in mind their specificity this is strong evidence that the action of these bodies is chemical.

In this preliminary account of the precipitins no attempt has been made to arrange the proteids on which they act in a systematic manner. But it is clear that the precipitins gave us a means of distinguishing between various proteids and mixtures of proteids. And at present, at least, this animal test is more delicate than any chemical method of discrimination available.

These experiments give, I think, strong support to the view that the production of immunity is due to processes of assimilation, and they also explain a physiological point which has long been a subject of discussion. When injected into the circulation peptone disappears very quickly from the blood-stream. Practically nothing is known as to the fate of the peptone which thus vanishes. But clearly this disappearance of peptone is exactly paralleled by the disappearance of the tetanus toxin from the blood-stream. In both cases we produce by immunisation a specific anti-substance. And just as in Wassermann's experiment tetanus toxin is neutralised by an emulsion of fresh spinal cord, so experiments are on record in which peptone has been neutralised *in vitro* by pieces of small intestine.[4] The instability of the anti-body for Witte's peptone and its reactivation by normal serum, showing in other words that it can form *precipitoids* analogous to the toxoids, has already been mentioned.

Finally, these experiments give the explanation of certain facts about which a good deal has been written though but little has been determined by experiment. Kraus's precipitates, for instance, and the precipitates formed by adding anti-eel's serum to eel's serum, or white of egg, are examples of the precipitins.[5]

The connexion of these experiments with the mechanism of agglutination remains to be mentioned. Without discussing the question in detail it may be said that three explanations of agglutination have so far been put forward. In the first place Grüber explains it by assuming that the surface of the micro-organisms becomes sticky. In favour of this view are certain microscopical appearances in the case of motile micro-organisms and the swelling up of the membranes of the micro-organisms. Against it, however, is the circumstance that non-motile bacteria and red corpuscles can also be agglutinated, and though stickiness would account for the cells remaining together when once in contact it gives no account of the way in which they are brought together. This view is untenable because agglutination is sometimes very rapid; it may occur, for instance, in a few minutes—that is, too quickly to be explained by diffusion currents or Brownian movements; secondly, because in agglutination work is done for which the viscous theory provides no source of energy; and thirdly, because the cells not only agglutinate but they settle much more rapidly than the control suspensions.

A second explanation is that the cells are brought together by the contraction of a clot. This view must be described as fanciful since even its adherents admit that the clot is invisible both to the naked eye and to high microscopical powers.

The third view is that of Bordet who regards the phenomenon as analogous to the clearing of inorganic suspensions. Bordet ascribes it to "diminished molecular adhesion" between the cells and the fluid bathing them.

It has already been mentioned that the precipitin of sheep's globulin agglutinates washed red corpuscles of the sheep. Now, if sheep's corpuscles be laked by the addition of distilled water this precipitin causes a precipitate to form in these laked corpuscles. Bullock's globulin precipitin, on the other hand, does not agglutinate these corpuscles and it does not give rise to this precipitate with the laked corpuscles. Similarly, other non-agglutinating sera—e.g., anti-egg-albumen, anti-Witte-"peptone," and normal rabbit's sera—give negative results with laked corpuscles of the sheep. Normal horse serum agglutinates rabbit's corpuscles and also gives a precipitate with the laked corpuscles. On the other hand, a solution of a horse serum that had been kept dried for several years did not agglutinate rabbit's corpuscles and did not produce any precipitate in the laked corpuscles.

We see, then, that these sera which *agglutinate the corpuscles also produce a precipitate in the laked corpuscles*, whether these sera contain artificially produced or naturally occurring agglutinins. If this precipitation occurs in laked corpuscles it should also occur in the uninjured corpuscles. And arguing from the production of precipitins against proteids as above described we should, indeed, expect that on immunising against red corpuscles we should obtain a serum which produces a precipitum in the red corpuscle itself—that is, which makes the substance of the red corpuscle less soluble in plasma or serum or salt solution.[6] We are now in a position to explain the agglutination of the red corpuscles. Bordet[7] has shown that this process depends on some change in the corpuscles and also on the nature of the fluid by which they are surrounded. We may have corpuscles that have undergone the change requisite for agglutination but which do not agglutinate, just as for the agglutination of silica and other organic precipitates the fluid bathing them must have certain definite properties. We see the two factors in this process of agglutination in some experiments of Danyse,[8] which, after repetition, I can fully confirm, though I differ from him entirely in his deductions from them. Ammonia in sufficient concentration lakes the red corpuscles of the goose. If a concentration sufficiently low be taken no hæmolysis occurs. Taking a suspension of these corpuscles in physiological saline solution, containing ammonia in amount just insufficient to produce hæmolysis, on adding to the suspension any of the phosphates of sodium, agglutination very rapidly occurs. Ammonia or the sodium phosphate alone do not produce agglutination. The ammonia clearly produces some change in the corpuscles which renders them agglutinable in a suitable medium. Now ammonia forms, as has been known for many years, a product called "histon" from the red corpuscle of the goose (this is not mentioned by Danyse). Histon is soluble in a certain amount of ammonia, forming a viscid solution; with an insufficient quantity it remains undissolved (Kossel).[9] The following table is quoted as an example illustrating these statements. In each tube 20 cubic centimetres of a 1 per cent. suspension of defibrinated goose's blood in saline solution (0·8 per cent.) was placed, and to each tube 2 cubic centimetres of sodium phosphate (Na_2HPO_4, 1 per cent. in 0·8 per cent. saline) was added. Decreasing

[4] Neumeister: Lehrbuch der physiologischen Chemie. Jena, 1893. Zeitschrift für Biologie, München, vol. xxvii.

[5] Bordet: Annales de l'Institut Pasteur, 1899.

[6] Evidence of the similarity at least of the agglutinins and the precipitins is given by the fact that they are uninjured by exposure to 56° C. for half an hour; and secondly, that both kinds of substances disappear in the course of their action. That the anti-bodies to Witte's "peptone" are destroyed at 56° C. does not affect the similarity, for, as above mentioned, the changes resulting in "Witte's peptone" are further reaching than in the case of coagulable proteids.

[7] Loc. cit.

[8] Annales de l'Institut Pasteur, 1899.

[9] Zeitschrift für Physiologischen Chemie, vol. viii., p. 511.

quantities of ammonia were then put in the tubes. Temperature 20° C.

Amount of NH_3 added.	Immediate result.	Result after 15 hours.
1. 2 c.c. N/100	Rapid agglutination in 10 to 15 minutes after mixing.	Complete hæmolysis. Uniformly gelatinous fluid.
2. 1·5		
3. 1·0		
4. 0·8		
5. 0·6		Hæmolysis gelatinous precipitate at bottom of tubes.
6. 0·4		
7. 0·3		
8. 2 c.c. N/1000		
9. 1·5		
10. 1·0		Fine precipitate on sides of tubes.
11. 0·8		
12. 0·6		
13. 0·4		No hæmolysis.
14. 0·3		
15. 0·2		

Ammonia, then, acts as a precipitin on the red corpuscles in a certain strength, forming insoluble histon within the corpuscle. When the medium is rendered suitable by the addition of sodium phosphate the corpuscles agglutinate. Agglutination consists, therefore, of two processes. In the first place a chemical change in the corpuscle by which some proteid becomes insoluble or relatively less soluble in the serum. This corresponds to the action of the precipitins on their corresponding proteids, and, indeed, is an instance of the action of a precipitin under special circumstances. The corpuscle is now ready for the second stage, in which it is carried down as mica can be carried down by alcohol or other inorganic precipitates by the addition of various salts, especially those of acids or bases of a high valency. The latter phenomena are generally regarded as effects of surface tension, and in this connexion one or two known, but so far unconnected, facts in reference to agglutination may be mentioned which are all in favour of surface tension playing a part in the second stage of this process. The striking feature of agglutination is the smaller surface relatively to their mass which the clumped cells possess in comparison with the unclumped cells. This is exactly what would be produced when particles float in a fluid which does not wet them. The surface of the fluid in contact with the particles here tends to be as small as possible. This result is attained by the particles agglutinating. It need hardly be pointed out that the energy of surface tension is ample to account for the work done in agglutination. Now the change brought about by a precipitin is that tending to make the surface of the fluid in contact with the solid as small as possible. If a solid immersed in a fluid be soluble in the fluid the surface between the two tends to increase to a maximum, or, in other words, the solid dissolves. If the solid become less and less soluble the sign of the surface tension changes—that is, the surface between the two tends to become as small as possible.[10] It may further be mentioned that in all cases of agglutination rise of temperature hastens the process.[11]

In conclusion, the precipitin or chemical stage and the surface tension or physical stage are efficient causes of agglutination, though it is possible that in the case of motile micro-organisms an increase in the viscosity of their surfaces also plays a part in the process.

Cambridge.

[10] Hence the assumption of a fatty membrane for the red corpuscles explains rouleaux formation. Shattock (Journal of Pathology and Bacteriology, 1900, No. 111) regards agglutination as an exaggerated rouleaux formation, though he does not discuss the explanation of these processes.

[11] It may be objected that the temperature only influences the first or chemical stage and not the second, surface tension action. In the case of ricin, however, I have found that the second stage is also hastened by rise of temperature. If ricin act on guinea-pig's corpuscles at 37° C. and after 12 hours the fluid be removed the corpuscles can be shaken apart and washed with saline. The corpuscles suspended in saline will agglutinate, although the ricin has been removed, and this agglutination is quicker at 37° C. than at room temperature. Hence rise of temperature influences the second stage of agglutination in this case.

CHRONIC EMPYEMA OF THE FRONTAL SINUS WITH NOTES ON THE TREATMENT OF FOURTEEN CASES.

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IN that general advance in treatment which has been made in the more special branches of medicine and surgery during the past decade, it may be said without fear of contradiction that a prominent place must be accorded to the improved methods of dealing with diseases of the nose and more especially those met with in connexion with the nasal accessory cavities—e.g., the maxillary antrum, and the ethmoidal, sphenoidal, and frontal sinuses.

The present article deals only with the most frequent chronic affection of the frontal sinus—viz., chronic suppuration or empyema.

To those whose thoughts are not often centred upon the regions under discussion and whose recollections of the anatomy of the nose and its accessory cavities are possibly somewhat vague, it may be well to state a few facts relative to the disposition of these parts and to lay more particular stress upon such of them as are of importance to the surgeon. "The frontal sinuses are contained in the lower part of the frontal bone above the root of the nose and inner ends of the eyebrows" (Quain). They begin to develop about the seventh year but remain small until puberty when they undergo rapid development. 1. They vary much in size even in the same individual and may be absent on one or both sides (Fig. 1, A, represents sinuses of average size). 2. A complete

FIG. 1.

A B C

In diagram A the sinuses are of normal size; in B they are unusually large. C indicates the amount of anterior wall (dark shading) which it is necessary to remove to thoroughly curette a sinus of normal size (indicated by dotted line).

and imperforate bony septum nearly always separates the sinuses in health, but in disease it is not uncommon for the cavities to communicate with one another through a pathological opening in the septum (Fig. 1, B). 3. In exceptional cases the frontal bone may be almost hollowed out by the sinuses so that they extend outwards to the temporal fossæ, upwards to the frontal eminence, and posteriorly almost to the junction of the frontal bone with the small wings of the sphenoid (Fig. 1, B). 4. The external configuration of the forehead or eyebrow gives no clue whatever to the size of the sinuses underneath. 5. The fronto-nasal canal passes through the anterior ethmoidal cells and opens into the middle meatus of the nose at the anterior and upper part of the hiatus semilunaris into which curvilinear depression are also found the ostia or openings of the maxillary antrum and the anterior ethmoidal cells. 6. In many cases the frontal sinus is in almost direct communication with the antrum, as seen in Fig. 2.[1] It will be noted that the fronto-nasal passage terminates very near the antral ostium, from which a fold of mucous membrane extends upwards and inwards, forming a sort of pocket at the bottom of which is the antral opening. Consequently a discharge of pus from the higher sinus would tend to fill the antrum before it appeared in the nasal cavity, so that the antrum may act not only as a generator but also as a recepticle of purulent discharge. 7. The direction and patency of the fronto-nasal canal varies greatly. From above downwards its direction is slightly backwards, and it

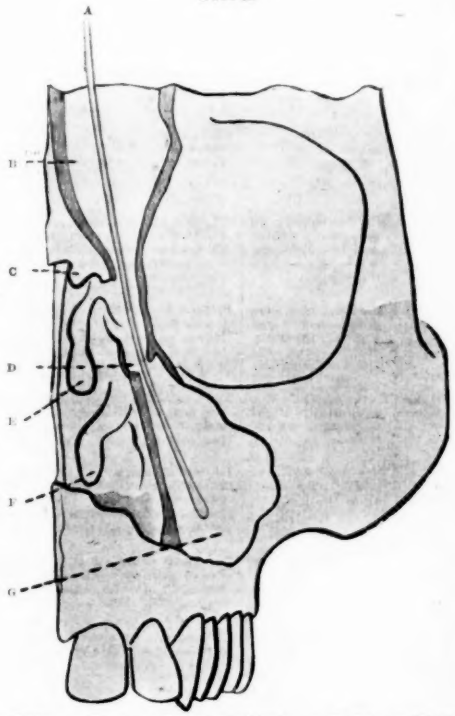
[1] I am indebted to Dr. Fillebrown, Boston, Mass., for permission to use the diagram.

may be so curved or tortuous that it would be impossible to enter the sinus from below without making a false passage. In long-standing cases of chronic suppuration of the sinus or ethmoidal cells it is often quite easy to pass a suitably curved cannula into the frontal sinus from the nose.

The examination of 120 skulls, kindly placed at my disposal by my former teacher, Professor G. D. Thane, showed that if a small quarter-inch trephine is applied to the lower part of the frontal bone included between the middle line and a line drawn vertically upwards from the internal angular process it will in all cases open the sinus on that side if one exists.[2]

Etiology of chronic suppuration.—The history of these cases would seem to indicate that the condition may arise as a sequence of an attack of acute suppuration which does not completely recover, possibly because of inefficient drainage from the sinus. Such acute attacks are not uncommonly of influenzal origin or follow in the wake of an acute rhinitis. In many cases the highest sinus is affected by septic infection from one of the other accessory cavities, such as the antrum or ethmoidal cells. I believe this source of infection is the commonest one, and Fig. 2 shows how easy it is for the upper sinus to be affected from the lower one. Similarly, chronic suppuration occurring in the thin-walled

FIG. 2.



A Probe. B, Sinus. C, Superior turbinate. D, Pocket. E, Middle turbinate. F, Inferior turbinate. G, Antrum.

ethmoidal cells through which the fronto-nasal canal runs would almost certainly infect the frontal sinus, especially if, as is generally the case, coincident inflammatory changes in the middle meatus hamper the free discharge of pus into the nasal cavity.

Symptoms.—The symptoms of chronic frontal sinus empyema are three in number—(1) a purulent, non-fœtid nasal discharge; (2) frontal or supra-orbital headache or feelings of discomfort such as a heavy weight or tension in the forehead; and (3) more or less well-marked nasal obstruction caused by the growth of polypi or other chronic inflammatory products within the nasal cavity.

The first symptom is a constant one. The pus is seen in the middle meatus and it is rarely fœtid. The discharge may be profuse, necessitating the use of from 10 to 12 handkerchiefs a day. The flow is not so much influenced by the patient's position as is the case in antral suppuration.

Headache may be taken to indicate that pus is retained in the sinus under tension. I have never met with this symptom when the drainage into the nose has been free, but have often cured it by removal of polypi or other obstruction from the middle meatal region. External pressure upwards and inwards on the floor of the sinus may be productive of pain when compared with similar pressure on the normal side, but here again much depends upon whether or not the pus is retained under tension.

In cases of long standing the middle meatus is always more or less blocked with chronic inflammatory products such as polypi, granulations, or sodden congested mucous membrane. If these are removed the anterior ethmoidal region is represented by a mass of granulation tissue bathed in pus, amongst which a blunt probe easily detects tiny spicules of bone or abuts against those remnants of the bony skeleton of the ethmoid which have only partially succumbed to the ravages of a rarefying osteitis. From this lateral mass hangs loosely the middle turbinal in which chronic inflammatory changes identical with those just described have also taken place.

In addition to the symptoms already described the patient's troubles may be aggravated by a dry throat, catarrhal deafness, and a sense of depression, apathy, and inability to work mainly caused by the nasal obstruction already referred to and partly to the chronic absorption of septic matter from the nasal mucous membranes.

Chronic frontal sinus empyema is not uncommonly bilateral; in five out of 12 cases here recorded this was the case. Under such circumstances the sinuses may discharge into their corresponding nasal cavity, being separated from one another by an imperforate septum (see Cases 6 and 13), or through a perforation in the septum the cavities may communicate and only empty into one side of the nose (see Case 13).

Diagnosis.—A purulent discharge in the middle meatal region almost invariably indicates suppuration of one or more of the nasal accessory sinuses—antral, ethmoidal, or frontal. Headache and nasal obstruction are also symptoms common to empyema of each of these cavities. Hence in arriving at a differential diagnosis each sinus must be carefully examined in detail and the surgeon will find that not rarely they are simultaneously diseased. Since the maxillary sinus is more frequently diseased than the ethmoidal or frontal, it is a good rule to regard every case presenting the characteristic symptoms as one of antral suppuration until examination proves this presumption to be wrong.

Transillumination of the antrum by means of a small electric lamp held in the mouth will as a general rule afford strong presumptive evidence of the presence or absence of pus in the cavity. If any doubt exists the sinus should be explored by a fine trocar and cannula (Lichtwitz's) passed into it from the nose. This little operation implies a preliminary cocainisation of the anterior half of the inferior meatus and then passing the trocar and cannula between the anterior end of the inferior turbinal and the outer wall of the nose in a direction outwards and backwards until the inner antral wall is pierced. The trocar is removed leaving the cannula in position, and on irrigation with warm saline or boric lotion absolute positive or negative evidence of suppuration is at once obtained. With cocaine, care, and a little dexterity the latter operation can be performed with ease and almost painlessly, while it is the only positive test which we possess in the diagnosis of antral suppuration. If such procedures give negative evidence the source of the purulent discharge must be sought for in the ethmoidal or frontal sinuses. In chronic cases the latter cavities are almost always associated in disease. The clinical signs of ethmoidal suppuration have already been referred to—viz., a purulent discharge in the middle meatus associated with a swollen polypoid or granular degeneration of the mucous membrane of the anterior ethmoidal region, amongst which a blunt probe easily detects areas of exposed bone or even loose spicules of the same in various stages of rarefying osteitis. To examine the frontal sinus the middle meatus should be cleansed with wool mops and an attempt made to pass a suitably curved cannula into the higher sinus, and if successful its cavity may then be irrigated and the nature of the contents ascertained. The presence of the cannula in the sinus may be further assured by placing one end of an aural auscultation-tube on the floor of the sinus and the other in the surgeon's ear; on injecting the lotion

[2] Vide THE LANCET, Sept. 26th, 1896, p. 866.

14 CASES OF CHRONIC EMPYEMA OF THE FRONTAL SINUS.

No.	Sex and age.	Date when seen.	Duration of symptoms.	Sinuses involved.	Treatment.	Result.	Remarks.
1	M., 38 years.	October, 1896.	18 years.*	Double frontal sinuses; double maxillary sinus (empyema).	Alveolar drainage of antra; external radical operation on the frontal sinuses.	Sinuses cured. There was a slight discharge in irrigation of the antra (February, 1900).	The patient nearly died under operation owing to the post-nasal space not having been plugged prior to operation; blood, therefore, flowed freely into the lungs during operation.
2	F., 22 years.	June, 1897.	7 years.	Both frontal sinuses and ethmoids.	External radical operation.	Fatal, after seven months suffering, from chronic septic osteomyelitis.†	This, my only fatal case, was certainly due to imperfect drainage into the nose and tightly stitching up the wound at the close of operation. Suppuration recurred in the sinuses and pus entered the freshly opened diploë of the frontal bone. Seven similar cases have been recorded.
3	F., 37 years.	March, 1898.	5 years.	The left frontal sinus and both maxillary antra.	Radical operation on the left sinus and antrum; intra-nasal opening and irrigation of the right antrum.	Cure.	The drainage in this case was secured by Luc's‡ method (*vide* infra).
4	F., 19 years.	April, 1899.	5 years.	Both frontal sinuses.	Radical operation on both sinuses at intervals of three months.	Cure.	The drainage in this case was secured by Luc's method.
5	F., 36 years.	May, 1899.	25 years.	The right frontal sinus and the right maxillary antrum.	Removal of mid-turbinal and irrigation of the sinus; alveolar drainage of the antrum.	Cure.	This is the only chronic frontal sinus empyema I have known cured without external operation.
6	M., 35 years.	June, 1899.	10 years.	Both frontal sinuses.	Irrigation of sinuses and intra-nasal treatment.	The headaches were completely cured and the discharge was greatly diminished.	On syringing into the left sinus the fluid returns from the right nostril, showing perforation of the septum. The patient only requires to use one handkerchief a day.
7	M., 52 years.	July, 1899.	9 years.	The right frontal sinus and the right maxillary antrum.	Intra-nasal treatment and sinus irrigation; alveolar drainage of the right antrum.	The headaches were cured but there was a slight discharge from the sinus and antrum.	Profuse hæmorrhage (arterial) followed puncture of the alveolus. It was only checked by plugging the antrum and middle meatus with gauze.
8	F., 27 years.	October, 1899.	3 years.	The left frontal sinus and the left antrum.	External radical operation; alveolar drainage.	Cure of the sinus suppuration; slight discharge from antrum.	The headaches have entirely ceased and the patient has gained 16 lb. in weight since the operation, the general health being excellent.
9	F., 42 years.	October, 1899.	3 years.	The right frontal sinus and antrum.	Radical operation on the sinus; alveolar drainage of the antrum.	The discharge was greatly diminished.	The wound was completely stitched at the close of the operation and the gauze was removed from the nose, followed by irrigation from the nose: an unsatisfactory method.
10	F., 16 years.	December, 1899.	3 years.	The right frontal sinus and antrum.	Radical external operation on the sinus and antrum.	Cure.	The sinus being small, the cavity was practically obliterated by free removal of the anterior bony wall.
11	M., 20 years.	December, 1899.	4 years.	Both frontal sinuses and both maxillary antra.	Radical external operation on the left sinus. Both antra were drained through the alveolus.	Cure.	The sinus being small, was obliterated as in the last case. The resulting depression is scarcely noticeable.
12	F., 30 years.	February, 1900.	3 years.	Both frontal sinuses.	External radical operation.	Relieved, but slight discharge from the sinus continues.	—
13	F., 19 years.	April, 1900.	2 years.	Both frontal sinuses.	External radical operation.	Cure.	The sinuses communicated through the septum. They were very large (Fig. 1B). Although the right sinus was diseased there was never any trace of pus or disease in the right nasal cavity.
14	F., 50 years.	May, 1900.	5 years.	Left frontal sinus and the left maxillary antrum.	External radical operation on the sinus; alveolar drainage of the antrum.	Cure. There was great diminution of the discharge.	The sinus was packed for three days and then syringed out twice daily for a fortnight through a small indiarubber tube passing through the sinus and out of the corresponding nostril.

* *Vide* Brit. Med. Jour., 1897. † *Vide* Brit. Med. Jour., 1899.

‡ Luc's modification of the radical operation involves two special features—(1) draining the sinus by means of a convolvulus tube, the expanded end of which rested in the infundibulum, the lower end projecting from the corresponding nostril; and (2) complete suture of the external wound. The operation is now rarely performed.

mixed with a little air the "bubbling" of the fluid can be distinctly heard within the sinus by the surgeon. Transillumination of the frontal sinus has been shown by Logan Turner to be of little practical value in diagnosis. In old-standing cases the passage of a cannula into the sinus may often be easily carried out, but when it is difficult or impossible it is well to remember that no force should be used in these localities.

In some cases it will perhaps be necessary to remove the diseased ethmoidal cells and anterior portion of the middle turbinal before the continuance of suppuration demonstrates that the source of discharge is in the higher sinus.

When the antrum and the frontal sinus both contain pus it is a nice point to determine whether the first-named cavity acts as a receptacle or generator of pus. In the latter instance, if transillumination gives a very dark shadow under the eye of the affected side we may suspect a thickened and diseased mucous membrane of the antral cavity, indicative of disease originating in that cavity, whereas a lighter shadow would suggest that the sinus was rather a reservoir than a generator of the purulent discharge. Of other diseases, supra-orbital neuralgia with slight swelling of the eyelid is most commonly confounded with frontal sinus empyema, but the absence of nasal symptoms would militate against the latter disease.

Treatment.—Whatever treatment is finally adopted in these cases it is of paramount importance to ensure free drainage from the sinus by removal of all chronic inflammatory growths from the lower end of the fronto-nasal canal. For this purpose the anterior half or more of the middle turbinal, all polypi, granulations, and diseased ethmoidal cells should be removed by means of curette, snare, or forceps. I have no hesitation in saying that many of the failures in the radical operation have been due to the fact that the external operation has been undertaken before free drainage and immunity from re-infection of the sinus have been secured by this important preliminary intra-nasal treatment.

When, however, this has been satisfactorily carried out the further treatment resolves itself into one of two measures: (1) intra-nasal irrigation of the sinus and (2) external radical operation.

1. *Intra-nasal irrigation.*—Little can be said in favour of this as a means of cure. In the first place it rarely succeeds, and what improvement has been noted in some case is probably due to the improved drainage provided by preliminary intra-nasal treatment. Bearing in mind that this irregular sinus is lined by a mucous membrane which has undergone polypoid degeneration and is freely secreting pus we can scarcely expect that irrigation twice or three times a week with a mild antiseptic lotion through a fine cannula will restore it to a normal condition. Furthermore, it is a treatment which can only be carried out by the surgeon himself except in very exceptional cases. I have given the method a fair and prolonged trial in four cases but without any permanent result except in one case (Case 5). The solutions used were boric lotion, hydrogen peroxide, iodoform emulsion, carbolic lotion (1 in 60), and antiseptic alkaline lotions.

A warning.—More than one surgeon has advocated boring into the sinus from the nose. It cannot be too emphatically stated that this method is unjustifiable, bristles with dangers, and has already been responsible for more than one death from meningitis following shortly after the performance of the operation. A glance at the varying anatomy of the region should be sufficient to warn any surgeon of the unwarrantable risks which such a procedure entails. Recently Spiess (Frankfurt) has revived the operation, the manipulation of instruments being carried out under the kindly guidance of the Roentgen rays. To the writer, however, the method seems to add needless difficulties and encumbrances to an unsurgical and unscientific operation which ought not under any circumstances to be contemplated.

2. *External radical operation.*—This involves removal of more or less of the anterior bony wall of the sinus, of its diseased contents, and the provision of free drainage into the nose.

The patient having been anæsthetised, the eyebrow shaved, the skin cleansed, and the posterior choana plugged with a sponge (*vide* Case 1) an incision is made commencing just above the internal palpebral ligament curving upwards and outwards just below the line of the eyebrow to about the junction of the middle and outer thirds of the supra-orbital ridge. The soft parts and periosteum are retracted in the length of the wound and a small disc of bone is removed from the anterior wall of the sinus by means of a chisel and mallet or a quarter-inch trephine. Pus generally exudes at once through the opening as also does the polypoid degenerated mucous membrane. A bent probe is now passed through the opening in the bone to gauge the extent and limits of the sinus. If the cavity is small, and more so if the patient is a male, the surgeon may proceed to remove all the anterior wall so that at the end of the operation the soft parts fall in against the posterior wall and obliterate the sinus. If the sinus is a large one only a portion of the anterior wall should be removed. In this part of the operation care should be taken not to injure the pulley of the superior oblique muscle, which often comes into view. The diseased mucous membrane is next carefully curetted away down to the periosteum and all crevices or extensions of the sinus are searched out with a small curette or sharp spoon. Somewhat free venous hæmorrhage occurs during this part of the operation, but pressure applied by means of small wool sponges soon checks it. The next step is to make a free opening into the nose which can be safely done by means of curved burrs of progressive sizes[3] or with a suitable curette. In this way suppurating anterior ethmoidal cells are destroyed. The communication between the sinus and the nose should at least be capable of admitting an ordinary lead-pencil, because the success of the operation almost entirely depends upon securing free drainage into the nose. It need scarcely be said that great care should be taken in using instruments in these upper ethmoidal regions. The surgeon will find that access to the upper end of the fronto-nasal canal within the sinus is more easily attained if he removes a small portion of the anterior sinus wall situated just above the junction of the frontal and nasal bones (Fig. 1c). This same diagram represents the relative amount of anterior wall which should be removed in order to deal efficiently with a sinus of ordinary dimensions as indicated by the dotted lines. Having thoroughly curetted and dried the sinus it may be swabbed out with zinc chloride 40 grains to one ounce or pure carbolic acid and then packed with a strip of antiseptic gauze. The soft parts are stitched up at once except at the lower angle of the wound through which the end of the gauze projects. In the course of three or four days (if in the meantime the temperature is normal and the wound looks well) about three inches of gauze may be withdrawn and cut off, the process being repeated every third or fourth day until all the gauze is removed and the cavity is lined by healthy granulation tissue when the external wound may be allowed to close.

In three cases I have inserted a small drainage-tube which projects from the inner angle of the external wound (which is stitched up as in the first method) and passes through the nose and out of the external naris. A hole is made in the side of the tube which lies in the sinus so that the latter may be daily irrigated and free drainage provided. The tube can be substituted after the lapse of about ten days for a U-shaped piece of silver wire bent somewhat like a tracheotomy tube so that it keeps open the fronto-nasal canal and can be daily removed for irrigation. Excellent results followed this method, the patients being free from discharge within one month of the operation.

It is unfortunately true that some seven or eight fatal cases of septic osteomyelitis have been recorded after the operation and apparently due to its performance, but it is only fair to say that these have occurred during the evolution of the operation as above described and in all cases they have been due to the fact that free drainage into the nose has not been ensured at the time of the operation, the external wound has been tightly sewn up, and with recurring suppuration the septic matter has been forced into the recently opened diploë of the frontal bone with ultimately fatal results.

In those instances where the antrum also contains pus an alveolar drain should be inserted and the antrum irrigated thoroughly for a few days before the radical operation on the higher sinus is undertaken. If, after the cure of suppuration from the frontal sinus the discharge from the antrum continues in spite of irrigation it may be necessary to explore that cavity in a somewhat similar manner to that described for the upper sinus, and it will often be found to contain a diseased mucous membrane which must be curetted away and the cavity packed or irrigated daily until its lining membrane is healthy.

[3] Made by Meyer and Meltzer, 71, Great Portland-street.

Complications.—Apart from septic inflammation of the frontal bone which ought not to occur, other complications are few and of small importance. It is well, however, to warn the patient beforehand of the possibility of loss of sensation in the skin over the forehead owing to division of the supra-orbital nerve. Temporary diplopia is not uncommon owing to disturbance of or inflammatory exudation around the pulley of the superior oblique muscle. It does not, as a rule, last for more than a week or ten days.

A study of the results attained in the appended list of cases will show that efficient intra-nasal treatment alone will completely relieve headache and nasal obstruction, while in most instances the purulent discharged is diminished. The question therefore arises: "What should determine the surgeon in advising the external radical operation?" The answer will, I think, mainly depend upon the temperament and idiosyncrasies of the patient. Intra-nasal treatment, as in Case 6, may so benefit the patient that he or she may find no inconvenience from a small amount of pus which necessitates the use of only one handkerchief a day, a condition of improvement which the individual referred to speaks of as "cure," although there is a slight discharge of pus from each sinus. Neither can the surgeon regard the improved condition as one calling for immediate radical intervention, much as his surgical instinct may prompt him to regard inimically any pus-producing focus within the body. On the other hand, some patients are particularly sensitive to the presence of any abnormal nasal secretion, and however slight it may be they desire to be entirely rid of the same. Under such circumstances and again where the patient contemplates going abroad or to regions where an occasional skilled examination of the nasal cavities is not obtainable we may advise the external radical operation.

Concerning this procedure it may be said that if due regard is paid to the anatomy of the regions involved and care is taken in carrying out the details already indicated, it is an operation almost free from danger, leaving remarkably little scarring or disfigurement even after extensive removal of bone, and yielding results gratifying alike to both patient and surgeon.

Note.—Since the above article was written I have operated upon three more cases of frontal sinus empyema, the last of which I successfully skin-grafted by Thiersch's method, and the progress of this case leads me to think that this method will give ideal results and greatly minimise the time during which the patient is under treatment.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

CASE OF PANCREATIC DIABETES DUE TO CALCULI.

BY E. WILLMER PHILLIPS, M.R.C.S. ENG., L.R.C.P. LOND.

THE patient was a naval pensioner, fifty years of age, and was first seen by me on the evening of Oct. 29th. He was then complaining (1) of passing a little blood per rectum when defecating; (2) a discharge in the interval which stained his shirt; and (3) of great weakness and wasting; he had lost in weight one stone in twelve months. He was a dark, tall, thin man and, except for absence of anæmia, looked as though suffering from malignant disease. There were no abnormal physical signs in his chest and nothing unusual was felt in the abdomen or per rectum. Sometimes he felt restless but lately he had been very drowsy. He had no thirst or polyuria. His tongue was clean and there was no perceptible odour in his breath. His bowels were open twice daily, the motions being very offensive. His pulse was 54 per minute. His urine was of specific gravity 1024; sugar was present, but there was no albumin. On Nov. 1st he passed five pints in 36 hours. On Nov. 3rd analysis showed 8·7 parts of sugar per 1000; no acetone, diacetic, or β-butyric acid was present. I noticed that the stain on his shirt looked greasy (or, as his wife expressed it, "as though vaseline had been smeared over it," and she had great difficulty in washing it out). Upon inquiry she said that the motions were greasy and those I examined were mottled-grey, greasy-looking, and peculiarly offensive; once or twice there was solid fatty material upon cooling.

There were occasional slight pain in the pancreatic region and tenderness upon deep pressure, but nothing could be felt. The optic discs were very white and the man had had temporary amaurosis some time previously. At first he improved slightly upon careful diet, aperients, and pancreatic tabloids, and the extreme drowsiness passed off, but at the end of a month he would eat just what he liked with consequent drowsiness and weakness; one night he became excited and light-headed after a diet of milk, ginger-beer, brandy, sardines, and liver. After these bouts he would starve for a few days and improve, but on the whole the course was one of progressive weakness, aggravated for three weeks by severe hæmorrhage from prolapsed piles. The specific gravity of the urine varied from 1010 to 1032; that passed in the day contained sugar (12·500 per 1000 in May), but that passed at night did not. There was slight peripheral neuritis in the hands and legs. The lung broke down in May and he gradually died from exhaustion on June 14th. There was never any jaundice. I afterwards heard that he had suffered from frequent severe attacks of colic and vomiting for which he was invalided from the navy 20 years ago. Only a partial necropsy was allowed. The liver and kidneys were apparently healthy. The pancreas was hard and its duct was filled with calculi and calcareous matter. The largest mass was situated in the head of the pancreas and was tubular in shape; the next largest was at the splenic end; a third could be felt in the posterior part of the head; the entrance of every branch duct was plugged with concretions. No communication could be found between the pancreatic and common duct or with the duodenum. The substance of the gland was hard but it was not enlarged. It was examined by the Clinical Research Association and the report was as follows: "The pancreas shows great increase of fibrous tissue in parts with atrophy of acini and glandular tubules. A section of moderately large duct shows much shed epithelium from catarrh." The colours of the calculi and débris were chiefly yellowish white and dark grey mixed.

Remarks.—It was evident upon examining the urine and motions that there was obstructive disease of the pancreas, but cases of pancreatic calculi are sufficiently uncommon to merit record. The chief points of interest in this case are first the misleading symptoms for which he sought advice (hæmorrhage and discharge per rectum), and secondly the history of previous severe colic. In a case recorded by Minnich the symptoms of colic, intermittent glycosuria, and fatty motions led to the discovery of pancreatic calculi in the fæces. The peculiar odour of the motions seems to be almost pathognomonic of pancreatic disease; the great prostration and wasting also are more pronounced than in ordinary diabetes.

Southsea.

IMPACTION OF A BEAN WITHIN THE AIR PASSAGES; TRACHEOTOMY; EXPULSION THROUGH THE WOUND; RECOVERY.

BY BRUCE HAMILTON, M.R.C.S. ENG., L.R.C.P. LOND.

THE following case presents features of special interest. A boy, aged 12 years, was playing with dried haricot beans when his elbow was accidentally jerked upwards with the result that a bean which he had been holding in his hand was shot into his mouth; fits of coughing and retching at once commenced.

I saw him within 10 minutes of the occurrence of the accident—viz., at 8.30 P.M. He was complaining of great difficulty in breathing and indicated the supra-sternal notch as the spot where obstruction was most felt. There was no evident laryngeal stridor and the character of the voice may be described best as "ventriloquial." He made many ineffectual attempts to relieve his embarrassment by cramming his fingers down his throat, an act that induced noisy vomiting but failed to give him relief. On examination of the chest no air was found to enter the right lung; the left lung was working naturally. No foreign body was seen in the larynx or trachea. Now and again he coughed up blood-stained mucus. It being

then practically certain that the right bronchus was blocked efforts were made to dislodge the foreign substance. Thumping the back, inversion, violent emesis induced by ipecacuanha wine, alike proved ineffectual, and the boy becoming sleepy he went to bed and slept placidly and uninterruptedly till morning.

Early the following day (12 hours after the accident) a fit of coughing occurred and similar attacks followed at diminishing intervals until at last a continuous struggle for breath terminated with unconsciousness and convulsions. The trachea was opened with one cut of the knife as the patient lay upon the floor where he had fallen, and at once restoration was partially re-established and consciousness returned, but it was not until the incision had been enlarged in a downward direction that a bean, greatly swollen, softened, and ruptured, was expelled through the wound with considerable force. The period of time that elapsed between the first cough in the morning and the onset of convulsions was about 20 minutes. The subsequent history of the case was uneventful.

The right and proper treatment in a case such as that which has been related is immediate tracheotomy, thus obviating the possibility of sudden death from laryngeal spasm should the foreign body become dislodged and be driven upwards; but it is by no means an easy matter to convince the friends of the imperativeness for surgical interference when they see the patient sleeping calmly. In the case in point, though probably there was present some degree of laryngo spasm at the time of operating, as evidenced by the partial restoration of respiration that at once took place after the trachea had been incised, I believe that the spasm was chiefly due to a participation of the adductores vocales in the general convulsive fit consequent upon hypervenosity of the blood rather than to reflex spasm brought about by peripheral irritation of the tracheal nerve-endings. Profuse hæmorrhage followed incision of the skin and may have been a factor in relieving spasm. The reason that asphyxia came on so precipitately towards the last may be partly explained by the nature of the foreign body. The testa would take time to soften and until that had been accomplished no great general increase in size could take place; but once the substance of the cotyledons began to absorb moisture a vast and relatively sudden expansion would occur, and any check upon expansion, such as the walls of the bronchus would have been likely to have exercised, would terminate with the dislocation of the foreign body into the wider lumen of the trachea.

Hampstead, N.W.

A CASE OF ADDISON'S DISEASE; TREATMENT WITH SUPRARENAL EXTRACT; DEATH.

BY EDGAR G. TREVITHICK, M.D. CANTAB.,
PHYSICIAN TO THE CHELTENHAM HOSPITAL.

IN this instance the symptoms of Addison's disease supervened in a man who exhibited in several organs signs of old, but thoroughly and long since arrested, tuberculosis. The bronzing of the skin was observed by the patient's friends two months before his death and became rapidly intensified along with increasing asthenia, chilliness, and gastro-intestinal irritability. Treatment with suprarenal extract was apparently without any avail, but it is only fair to say that this treatment was not instituted until very late in the course of the illness. The following notes give an outline of the case.

The patient was a man, aged 40 years, with a strong family history of tuberculosis. His present illness had begun two months before with darkening of the complexion accompanied or followed by feebleness and nausea. On admission to the Cheltenham General Hospital there was extreme pigmentation of the skin. The scrotum and penis were absolutely black. The face and hands were of a dark brown colour. The skin over the trunk was much pigmented. The legs and the feet were only slightly discoloured. There was some pigmentation on the dorsum of the tongue. The pulse was 66. The temperature was entirely subnormal. The knee-jerks were present. The urine was normal. There was considerable distortion of the spinal column, dating from an attack of spinal caries when 23 years of age. The symptoms most complained of were vomiting, great weakness, and chilliness. Suprarenal extract was administered twice a day without any good effect. Small doses of liquor morphiæ alone appeared of service in checking the vomiting. On the tenth day after admission the temperature, which for several days had never been higher than 97·4° F., suddenly rose to 101°; and with it the pulse-rate, which had averaged 55, increased from 50 to 100. No actual rigor was noticed. But two mornings afterwards the temperature had again fallen to subnormal and the patient was once more complaining much of chilliness. The nurse in charge administered a little stimulant and leaving the bedside was surprised and shocked to find on returning 10 minutes later that death had occurred.

Necropsy.—Signs of old arrested tuberculous disease in the spinal column were found. There were small obsolete strongly encapsuled tuberculous deposits here and there in both lungs and in the bronchial glands. There were no signs of active or even recent tuberculosis in any organ. There was very great displacement of organs due to spinal curvature. The right suprarenal capsule firmly adherent to the under surface of the liver was represented by an olive-shaped mass of dense fibrous tissue. The left capsule was adherent to the tail of the pancreas; it was normal in shape but with its proper substance entirely replaced by fibrous tissue containing several small caseous centres. Owing to spinal curvature the kidneys had fallen away considerably from their normal position and were no longer any guide to the situation of the suprarenals. There was much chronic thickening of the peritoneal and subperitoneal tissue in the neighbourhood of the distorted spinal column and the suprarenals lay in the midst of this sclerosed area. The spleen was diffluent. The liver was very soft and fatty. The heart walls were very thin and soft and rotten.

Cheltenham.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum propriae collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

WESTMINSTER HOSPITAL.

THREE CASES OF PHTHISIS TREATED WITH "TUBERCULIN R."

(Under the care of Dr. W. MURRELL.)

IT is even more important to publish unsuccessful cases than to record those in which improvement has resulted, and especially is this so in connexion with new methods of treatment. Ten years have elapsed since the introduction of Koch's tuberculin, and yet it has not attained to a recognised position in the therapeutics of pulmonary phthisis. It appears to be of very little use in mixed infections or in advanced cases, and the striking beneficial results detailed by Professor McCall Anderson in his lecture[1] are certainly exceptional. Professor Anderson gives his patients large doses of cod-liver oil (three ounces a day), and this may account in part for the difference. The reaction produced by Koch's original tuberculin was certainly of some diagnostic value, but with the new tuberculin there is very slight reaction and therefore its use in diagnosis is less.

CASE 1.—An old soldier, aged 41 years, was admitted to Westminster Hospital on August 31st, 1898, suffering from phthisis. He had been ill for three years and during the greater part of that time had been under treatment. His symptoms were cough with muco-purulent expectoration containing tubercle bacilli in abundance, progressive loss of flesh, and night-sweats. His physical signs were deficient movement and dulness over the whole of the right side, with high-pitched breath-sounds accompanied by crepitant rales. Posteriorly there was dulness at the right base up to the angle

[1] THE LANCET of June 16th page 1703.

of the scapula with feeble breath-sounds and a few soft râles. In the supra-spinous fossa there was cavernous breathing with whispering pectoriloquy. There was no indication of mischief on the left side. The patient had tuberculous disease of the spine in a progressive condition, for which he was wearing a poroplastic jacket. His urine contained a trace of albumin, but no casts were found. His temperature during the first five days was 100° F. at night, but on the following three days was only once above 99°. The "Tuberculin R" treatment was commenced on Sept. 9th. The patient was kept in bed, strict antiseptic precautions were observed, and the temperature was taken every four hours night and day. The following is a list of the injections given:—

No.	Date.	Dose.	Reaction.
1	Sept. 9	$\frac{1}{2\frac{1}{2}0}$ mg. in 5 c.c.	99·0° to 100·8° F.
2	,, 12	$\frac{1}{2\frac{1}{2}0}$ mg. in 5 c.c.	None.
3	,, 15	$\frac{1}{1\frac{1}{2}5}$ mg. in 2 c.c.	98·0° to 100·0° in 7½ hours.
4	,, 16	$\frac{1}{2\frac{1}{2}0}$ mg. in 4 c.c.	None.
5	,, 19	$\frac{1}{2\frac{1}{2}0}$ mg. in 5 c.c.	None.
6	,, 22	$\frac{1}{10}$ mg. in 2 c.c.	98·0° to 99·8° in 8 hours.
7	,, 27	1 mg. in 1 c.c.	98·6° to 100·2°.
8	,, 30	2 mg. in 2 c.c.	99·0° to 101·2° in 20 hours.
9	Oct. 4	3 mg. in 3 c.c.	99·2° to 101·8° in 12 hours.
10	,, 6	3 mg. in 3 c.c.	99·0° to 101·6° in 24 hours.
11	,, 7	3 mg. in 3 c.c.	99·4° to 101 4° in 16 hours.
12	,, 13	3½ mg. in 3½ c.c.	99 2° to 100·4° in 20 hours.
13	,, 18	4 mg. in 4 c.c.	99·2° to 101 0° in 12 hours.
14	,, 19	4 mg. in 4 c.c.	100·4° to 101 6° in 8 hours.
15	,, 22	4 mg. in 4 c.c.	98·0° to 101 8° in 24 hours.
16	,, 28	3 mg. in 3 c.c.	98·0° to 100·0°.
17	Nov. 10	4 mg. in 4 c.c.	99·0° to 100·8°.
18	,, 18	4 mg. in 4 c.c.	98·0° to 99·6°.
19	,, 27	5 mg. in 5 c.c.	98·0° to 102 4°.
20	Dec. 1	2 mg. in 2 c.c.	None.

From this table it will be seen that in 12 weeks the patient had 20 injections in doses ranging from $\frac{1}{2\frac{1}{2}0}$th of a milligramme to five milligrammes. A detailed examination of the condition of the chest was made every week and there was no improvement in the physical signs, but, on the contrary, there was some extension of the mischief at the right apex. The tubercle bacilli were still found in abundance in the expectoration. The general symptoms showed no amelioration and for a considerable period the patient suffered from profuse night-sweats. The only hopeful sign was that the appetite was maintained and that the patient did not lose flesh. He was discharged on Dec. 10th.

CASE 2.—A man, aged 35 years, was admitted to Westminster Hospital on August 5th, 1898. He was in the hospital for pleurisy with effusion on the right side in 1896. He remained well until Christmas, 1897, when he caught a bad cold and since then his cough had never left him. He had night-sweating and there was considerable loss of flesh. On admission the physical signs were impairment of movement at the right apex, dulness on percussion, bronchial breathing in the first and second intercostal spaces, accompanied by moist râles. Moist râles were also heard at the right back up to the angle of the scapula. On the left side there was dulness at the base with moist sounds. Tubercle bacilli were found in abundance in the expectoration. The temperature for four weeks after admission, during which he had only symptomatic treatment, usually reached 103° F. in the evening. On Sept 12th he was given a hypodermic injection of $\frac{1}{2\frac{1}{2}0}$th of a milligramme of "tuberculin R" which produced no reaction. On the 14th the dose was repeated without effect and on the 16th it was increased to $\frac{1}{2\frac{1}{2}0}$th of a milligramme. On the 22nd at 8 A.M., when the temperature happened to be only 97·0°, he was given $\frac{1}{2\frac{1}{2}0}$'th of a milligramme and the temperature rose to 99·8°, but whether as the result of the injection it was impossible to determine. On the 27th he was given one milligramme and on the 31st two milligrammes, and again without any positive influence on the temperature. There was no improvement in the physical signs and on Oct. 2nd he took his discharge, his condition being no better than on admission. He died three weeks after leaving the hospital and no post-mortem examination was obtained.

CASE 3.—A man, aged 45 years, was admitted to Westminster Hospital on August 21st, 1897. He stated that he had had a cough since February, 1896, the cough being constant and accompanied by much expectoration. He had a bad attack of hæmoptysis five months before and since then had frequently spat blood, the last time being about a month before admission. He had been steadily losing flesh for over a year, but had not suffered from night-sweats. There was flattening with diminished movement at the right apex in front and the percussion note over the whole of the right side was impaired. At the right apex the breath-sounds were weak and were accompanied by numerous fine râles. In the outer half of the first two intercostal spaces whispering pectoriloquy was obtained. The temperature during the first week usually reached 102° F. in the evening. On August 29th at 11.55 A.M., the temperature being 98°, he was given a hypodermic injection of $\frac{1}{2\frac{1}{2}0}$th of a milligramme of tuberculin R. At noon the temperature was 98·8°, and at 1 P.M. 99·6°. It then fell again and at 3 P.M. was 98°. On Sept. 1st at 1.45 P.M. he was given an injection of $\frac{1}{2\frac{1}{2}0}$th of a milligramme and at 6 P.M. his temperature was 101·6°. On the 3rd at 9.30 A.M., the temperature being 100°, he was given an injection of $\frac{1}{1\frac{1}{2}5}$th of a milligramme and at 10 A.M. the temperature was 101·8°, after which it gradually fell. On the 9th at 6.15 P.M., the temperature being 100°, the patient was given a hypodermic injection of $\frac{1}{3}$rd of a milligramme. At 6.30 the temperature was 101° and at 7 it was 101·8°, after which it gradually fell. The patient was given in all six injections, the maximum being $\frac{1}{10}$th of a milligramme, but there was no improvement either in the symptoms or in the physical signs. His appetite failed to improve, and as he was rapidly losing flesh he was sent home.

Remarks by Dr. MURRELL.—My experience of the treatment of phthisis with tuberculin R has been so limited compared with that of Professor McCall Anderson that it is with some hesitation that I venture to call attention to these cases. My experience would probably have been larger had the results been more favourable. It may be that if cases were carefully selected and only patients in a very early stage treated by this method better results would be secured. Possibly, too, the number of injections was too small, for I believe that in a successful case published by Professor McCall Anderson 47 injections were given in four months. The maximum dose of the new tuberculin is said to be 20 milligrammes, but that is a very large quantity and I have not ventured beyond five milligrammes. The irritation produced at the seat of infection is often a source of trouble and inconvenience to the patient. The expense is a serious consideration and in hospital practice a physician hesitates to recommend his house committee to sanction the employment of a remedy which runs up to 17*s.* a dose. I endeavoured to get it made in England on more reasonable terms, but was told that although the formula was published the exact details were not known. I have no wish to speak unfavourably of tuberculin R and my limited experience would not justify me in doing so, but I am positive that in these particular cases I could have obtained far better results with the formic aldehyde treatment, the details of which I have already published.

MORPETH COTTAGE HOSPITAL.

A CASE OF FRACTURE OF THE LEFT SIDE OF THE SKULL WITH COMPLETE RIGHT HEMIPLEGIA; OPERATION; RECOVERY.

(Under the care of Dr. E. F. L. DE JERSEY.)

IN all cases of depressed fracture of the skull, except in those in young children, it is now the accepted treatment to trephine at once, even in the absence of symptoms and even if the fracture be unaccompanied by a lesion of the scalp. In the following case the coma and the right sided hemiplegia pointed clearly to the lesion on the left motor area, and the fact that pressure over the fracture produced spasm of the right side of the body confirmed the diagnosis. The harmlessness and the value of modern treatment of even extensive fractures of the skull could not be better illustrated than in the case recorded below.

A man, aged 45 years, was admitted into the Morpeth Cottage Hospital on Feb. 22nd, 1900, having been struck on the left side of the head on the 17th with a pole six feet in length and from six to nine inches in diameter. There was complete unconsciousness with right-sided hemiplegia and retention of urine and fæces. The temperature was 102° F. On the day before the patient's admission into the hospital (Feb. 21st) slight crepitation was detected over the left parietal bone at about its centre. There was no external wound or discolouration over the site of the injury, only slight

pitting on pressure. There was slight effusion of blood a little above and in front of the left ear. There were also two black eyes produced by fist-blows. On firm pressure over the site of the fracture spasm of the whole right side of the face and body was produced.

An operation was performed at 3.30 P.M. on Feb. 22nd. An incision was made from a point one inch above the left frontal eminence of the frontal bone and three and three-quarter inches above the left external canthus down to a point half an inch above the lower border of the left parietal bone and two and a half inches above the left external auditory meatus up to a point a little above and behind the left parietal eminence four and a half inches above the left mastoid process and five and a half inches from the starting-point. On raising the flap thus formed an extensive stellate, depressed, fissured, and comminuted fracture was found, the stellate and comminuted portion being situated immediately in front of the left parietal eminence. On raising the depressed and comminuted fragments both the internal and external tables of bone were found to be involved, fragments of bone projecting in all directions into the brain substance, tearing to shreds the dura mater, the arachnoid, and the pia mater lying over the convolutions of the brain. After the removal of the fragments of bone an area of brain two and a half inches by three-quarters of an inch was exposed. From the anterior border of this area in the bone was a fissure extending downwards and forwards into the frontal bone towards the outer border of the left orbit; another fissure extended from the posterior part through the remaining portion of the parietal bone into the occipital bone. This latter fissure was much wider than the anterior one, it being about a quarter of an inch in breadth. Beneath the stellate and comminuted fracture was a large hæmatoma, which was left undisturbed. At a point four inches at right-angles to Reid's line and two inches behind the exterior auditory meatus, being at a point a little posterior to the left parietal eminence, was a cavity extending right into the substance of the brain large enough to admit the little finger quite easily. This cavity corresponded to the upper end of the left Rolandic fissure, thereby involving the upper ends of the left ascending frontal and parietal convolutions, the latter chiefly. This cavity, no doubt, was produced by the injury, but degenerative changes had already set in, as the brain matter round the orifice was quite pulpy and friable. The fracture covered most of the motor area, there being complete right-sided hemiplegia and motor aphasia, showing that the left inferior frontal convolution must have been damaged as well as the parietal convolutions. Some of the difficulty in speech was due to paralysis of the tongue, but after the latter had passed away there was considerable aphasia left. The patient stated when he got the use of his tongue that he could hear everything which was said to him and wished to answer but he could not get his words out. Part of the whole thickness of the parietal bone was replaced, a gauze plug was inserted into the cavity in the brain and brought out under the flap, which was sutured, and a dry dressing was put on. The plug was removed on March 3rd and the wound healed without suppuration.

Before operation the pulse was 40, the breathing was very quiet, almost inaudible, and deep coma was setting in. At 9 P.M. on the evening of the operation the patient was still unconscious but he raised his right leg every now and again. The pulse was quicker and the breathing was stronger. The temperature was 97·5°. He had taken nourishment, and this he had not done before since the injury. He was very restless and kept on raising himself from the pillow. Shoulder bands were put on which kept him still, they being tied to the head of the bed. On Feb. 23rd (the day following the operation) the patient had had a pretty good night though he had been very restless at times. He had said the word "No" and had made signs for a drink. The urine and fæces were passed involuntarily. The temperature was 98·2°.

From the operation the patient steadily improved and never once did the temperature rise above the normal. On Feb. 24th the right arm could be raised slightly. On the 25th the right arm could be moved freely and consciousness was returning. On the 28th the patient tried hard to speak but could not get the words out. He opened his mouth when asked to do so and said small words like "Yes" and "No," but usually he used the latter to questions which were put to him. Consciousness had almost completely returned. On March 7th the patient put out his tongue for the first time. It deviated much to the right. He carried on a little disconnected conversation, there being much motor aphasia. He started taking light solids on this day. On the 12th he gave a statement to the police as to the cause of his injury quite rationally, but with difficulty at times owing to the aphasia. He said that he had a bad memory and could not remember names so well as he could before the injury. On the 16th the patient got up. On April 2nd he walked about the ward quite well and was able to carry on a conversation with very little difficulty. The paralysis had completely disappeared, but there was slight weakness of the right side, specially noticeable by the clench of the two hands. On the 10th the patient was dismissed from the hospital.

Remarks by Dr. DE JERSEY.—The order in which the paralysis disappeared was very prominent. Almost directly after the pressure over the motor area had been relieved movement of the paralysed side returned, starting with the leg, then followed by the upper extremity, the face, and lastly by the tongue. The shoulder movements returned before those of the elbow, and those of the elbow before those of the hand—viz., the finer movements. The upper face being only slightly affected returned to its normal state long before the lower face. The return of the paralysed side to normal brought out very well the fact that the parts which rarely act independently of their fellows on the opposite side are the parts that are usually the least paralysed and consequently are the parts that recover the most quickly.

Before the operation there was retention of urine; after operation there was retention with at times incontinence, the bladder being frequently found above the pubes. The urine was drawn off for five days and the bladder was washed out with a weak solution of boric acid, as there was slight cystitis. Fæces were passed involuntarily for two or three days after the operation; after that there was constipation.

The interesting points in the case are the rapid recovery after the pressure on the brain had been relieved, the signs of relieved pressure appearing before those of shock began to pass off, and consciousness returning comparatively late.

The cavity found at the top of the motor area seemingly has left no bad effects, as also the gaping fissures in the bone extending into the frontal and occipital areas respectively. The fissures were left as approximation of the two sides could not be obtained, although seemingly all wedges of bone likely to cause the gaping were removed. It was thought unwise to make further flaps to discover actually how far these fissures extended, as in all probability no harm would be done by leaving them. This was the case. Another interesting point is the fact that a piece of bone, including both the external and internal table, completely deprived of its periosteum, was replaced and has become firmly adherent to the adjacent bone. Its size was nearly half an inch square.

Medical Societies.

OBSTETRICAL SOCIETY OF LONDON.

Porro-Cæsarean Hysterectomy with Retro-peritoneal Treatment of the Stump in a Case of Fibroids Obstructing Labour, with Remarks upon the Relative Advantages of the "Modern Porro" Operation over the Sänger-Cæsarean in most other Cases requiring Abdominal Section.

A MEETING of this society was held on July 5th at 20, Hanover-square, W., Mr. ALBAN DORAN, the President, being in the chair.

Dr. AMAND ROUTH read a paper on Porro-Cæsarean Hysterectomy with Retro-peritoneal Treatment of the Stump in a Case of Fibroids Obstructing Labour, with Remarks upon the Relative Advantages of the "Modern Porro" Operation over the Sänger-Cæsarean in most other Cases requiring Abdominal Section. During the patient was first seen the pelvis was occupied by a large fibroid and the cervix uteri was out of reach above the symphysis. During the thirty-fourth week the pelvic fibroid was rather suddenly drawn up out of the true pelvis and it was hoped that parturition would be naturally performed. As it was found that the head was arrested just above the lower segment of the uterus by two opposing fibroids a Porro-Cæsarean operation was

performed in preference to a panhysterectomy or to Cæsarean section with removal of the appendages. *The operation.*—When the abdomen was opened in the middle line the left broad ligament came into view with the largest fibroid on its right. The incision into the uterus had therefore to be made posteriorly to the left broad ligament and was directly over the placental site. The placenta was stripped off, the membranes were incised, the child was extracted, the placenta and membranes were removed, and the uterus was brought out through the abdominal incision. The operation was then completed by Baer's method. Both mother and child had an uneventful recovery. It was a point worthy of discussion whether supra-vaginal amputation of the uterus (Porro's operation), with retro-peritoneal treatment of the stump, was not safer for the patient in skilled hands than a Sänger-Cæsarean section with sterilisation in all cases of *permanent* obstruction to labour requiring abdominal section, except, perhaps, those due to cancer of the supra-vaginal cervix. When it had been decided that a viable child had to be delivered from a living mother by abdominal section all cases would resolve themselves into three groups: (1) those where hysterectomy (Porro or panhysterectomy) with retention of one or both ovaries was absolutely indicated; (2) those where a Sänger-Cæsarean operation (with or without sterilisation) was absolutely indicated; and (3) those capable of being treated by either operation. It was agreed that a Porro (or panhysterectomy) was absolutely indicated in the following cases: obstructing fibroids, cicatricial stenosis of the vagina where the lochia could not escape, septic endometritis, decomposed fœtus (osteomalacia owing to the fact that removal of the appendages was often curative), uterine hæmorrhage from uterine inertia during Cæsarean section, and after much previous manipulation of the uterus in attempts to extract per vaginam. Sänger-Cæsarean section without sterilisation was, on the other hand, absolutely indicated, instead of a "Porro," where it was considered desirable for the woman to have a chance of another child, and Sänger-Cæsarean section with sterilisation was required (?) in cases of cervical cancer when the supra-vaginal cervix was involved. There only remained, therefore, a third group of cases where a Cæsarean section with sterilisation was usually done, but where it would, in Dr. Routh's opinion, be quite as reasonable to do a modern "Porro." This third group included all cases of sufficient pelvic contraction, and it was in such cases that the relative value of a modern "Porro" operation as compared with a sterilising Sänger-Cæsarean operation demanded serious consideration.

Dr. A. L. GALABIN preferred to call the operation performed by Dr. Routh a Baer-Cæsarean or simply a Cæsarean hysterectomy, as the original operation of Porro was hysterectomy with the uterine stump fixed in the abdominal wound instead of being covered by peritoneum and dropped into the abdomen, as Dr. Routh had done. He thought the best operation had been done and he had performed a Porro's operation in a similar case five years previously. He did not think that pregnancy added to the difficulties of such a hysterectomy, and was led by this experience to recommend it as the best operation when fibroids obstructed labour and also as an alternative to the ordinary Cæsarean section apart from fibroid tumours. In several other cases of pelvic fibroids complicating pregnancy he had found that the fibroids became elevated during the first stage of labour, and had enabled forceps to be used to complete delivery. He asked Dr. Routh whether there was much hæmorrhage before the ovarian and uterine arteries were tied and whether the elastic ligature was used.

Dr. WILLIAM DUNCAN approved of the details of the operation performed by Dr. Routh. He believed that abdominal hysterectomy with intra-peritoneal treatment of the stump was much less dangerous than any Cæsarean section except in cases of cancer of the cervix where he would prefer to treat the stump extra-peritoneally. He preferred to leave both ovaries instead of only one, as he had several times noticed that when one ovary was removed various unpleasant "menopause" symptoms supervened, although never so severely as when both ovaries had been removed.

Dr. PETER HORROCKS said he preferred to speak of Cæsarean section rather than of Sänger-Cæsarean because the evolution of asepsis had led many operators to abandon Sänger's main improvement, which was to sew the peritoneum completely over the deep sutures. Although he believed that Dr. Amand Routh had done quite the best thing in his case he did not think it was possible to formulate rigid rules for all cases, for it often happened that it was found best to do something quite different from what was intended before the operation was begun. Speaking generally, he preferred Cæsarean section to Porro's operation, sterilising the patient by snipping half an inch out of the middle of each Fallopian tube. This operation was, he considered, easier and safer for the patient. If possible, he always left both ovaries when performing hysterectomy, although he had never found that climacteric atrophic changes ensued if only one were left behind.

Dr. W. R. DAKIN believed that if one ovary were left behind after hysterectomy the effect was the same as if both were left. He agreed with Dr. Routh that the woman escaped certain risks if the uterus were removed instead of being merely sutured and the patient sterilised, and alluded especially to the risks of infection of the peritoneum through an imperfectly sutured wound and of adhesions between the uterine and abdominal wounds which might cause strangulation of the bowels. If the woman wished to have a family, all members of which were to be delivered through the abdominal wall, it was another matter. He had observed no greater shock after supra-vaginal hysterectomy in these cases than after an ordinary Cæsarean section, but agreed that it was wise not to decide how the operation was to be finished till the child was actually extracted from the incised uterus. He had recently operated with successful results to both mother and child where the true conjugate was only two and three-quarter inches. In a previous pregnancy labour had to be induced at the sixth month. The patient agreed to an abdominal operation but wished at the same time to be sterilised. At the operation, after extracting the child, he found the uterine vessels were standing out so clearly and were so easy to ligature that he decided it would be a much shorter procedure to remove the body of the uterus, treating the stump by the retro-peritoneal method, than to suture the uterine wound and to ligature and excise a part of each tube. He thought this would be the decision most often arrived at under similar circumstances.

Dr. HERBERT SPENCER agreed that the best operation had been done in this case and he had himself performed Porro's operation under similar circumstances eight years ago. While the intra-abdominal treatment of the stump shortened the convalescence and lessened the risk of hernia it did not always prevent septic peritonitis, by infection of the ligatures through the vagina (Klotz), nor the risk of adhesion of bowel to the seam causing intestinal obstruction, which had occurred in one of his own cases. He did not consider that Porro's operation should be done in all cases of permanent obstruction, such as contracted pelvis. He much preferred the conservative Cæsarean section. He would, however, have nothing to do with sterilisation by tying or cutting the tubes, which, besides exposing the patient to additional risks, was very unreliable in its effects and was at least debateable from the moral standpoint. The conservative Cæsarean section was a very successful one and left no stump for intestines to adhere to, the wound in the puerperal uterus lying up against, and becoming adherent to, the abdominal wall, so that in a subsequent operation the peritoneal cavity was sometimes not opened at all. He had recently performed Cæsarean section under local anæsthesia upon a patient whom he had delivered by Cæsarean section twice previously. As both the children thus delivered had subsequently died the advantage to the mother of having a third, and this time a very healthy, child was obvious. He had also successfully repeated Cæsarean section in another case.

Dr. COLLINGWOOD ANDREWS had had opportunities of comparing the progress of cases of hysterectomy during pregnancy where both the extra- and intra-peritoneal methods of treating the stump had been tried and greatly preferred the latter method.

Mr. A. C. BUTLER-SMYTHE thought that the operation performed by Dr. Routh was only possible in a hospital or where skilled assistance was obtainable. Wherever a Porro's operation was required, as in cases of fibroids, he considered the retro-peritoneal treatment of the stump far preferable to the old method, but he would leave the precise details of the operation to be decided when the abdomen was opened and the child extracted. That was also the time to consider whether the woman should be allowed to run the risk of another pregnancy.

Mr. J. H. TARGETT said he considered that a non-sterilising Cæsarean section was very rarely justifiable, while between a supra-vaginal hysterectomy and a Cæsarean section with sterilisation the balance would usually be in favour of hysterectomy, because it could be more rapidly performed and prevented the risk of hæmorrhage and subsequent sepsis. When the pregnancy was complicated with fibroids the advantages of supra-vaginal hysterectomy were obvious. As evidence of an additional risk in the after-history of cases where Cæsarean section without sterilisation had been done, he showed a specimen of a uterus which he had removed from a woman who had had Cæsarean section performed by him two years and a half previously for impacted shoulder presentation. When re-admitted she was in a state of collapse and when the abdomen was opened the child and placenta were found free in the peritoneal cavity, and there was a large rupture in the anterior uterine wall along the scar of the previous operation. The patient fortunately recovered.

The PRESIDENT believed that the retro-peritoneal operation was best provided that, as in the present case, the obstetrician had already performed it more than once on non-pregnant subjects and in hospital practice with plenty of assistants. Country practitioners with large midwifery practices but without experience of abdominal section have, as in a case within his own knowledge, had excellent results after the old Porro-Cæsarean operation, which was easy and could be done quickly. On that account Lepage performed the old operation in a hospital on a case of labour at term complicated by fibroids where there was free hæmorrhage, saving mother and child. Weiss and Schuhl reported the removal of the uterus in two cases of spontaneous rupture during labour occurring in a hospital. In one case the elastic ligature and pins were used and the patient recovered; in the second, which was lost, the retro-peritoneal operation was undertaken, but this case was septic. Panhysterectomy had the disadvantage of being yet lengthier than retro-peritoneal hysterectomy.

Dr. AMAND ROUTH, in his reply, agreed that the nomenclature was not altogether satisfactory, but thought that all cases of hysterectomy during late pregnancy (except panhysterectomy) were of the nature of a "Porro," the treatment of the stump being a detail capable of many renderings. He did not consider that the old "Porro" operation was suitable for cases of advanced cancer of the cervix owing to the great strain on the friable supra-vaginal cervix, which would almost certainly give way. He did not think it made any difference to the patient's after-history whether one or both ovaries were left. Most of the speakers had, with certain reservations, approved of his view that hysterectomy was in most cases preferable to Cæsarean section with sterilisation, and, as the President stated, if haste was essential the old "Porro" was indicated, otherwise the modern retro-peritoneal hysterectomy. Dr. Herbert Spencer's contention that wherever possible Cæsarean section without sterilisation should be performed, so as to allow another pregnancy to occur, was not in his opinion justifiable. The patient might at full term be far away from skilled assistance and would, moreover, run all the risks mentioned in his paper both during the puerperium and subsequently. The adhesions which Dr. Spencer stated occurred between the uterine and abdominal incisions constituted one of the dangers and involved the risk of intestinal obstruction. He preferred catgut to silk for suturing the muscle of the stump, owing to its quicker absorption, which therefore caused a smaller chance of subsequent infection. He had not found the elastic ligature necessary but had quickly tied or clamped the uterine vessels.

The following specimens were shown:—

Dr. G. F. BLACKER: Frozen Sections of an Early (ten weeks) Pregnant Uterus.

Dr. PETER HORROCKS: A Pregnant Uterus with Fibroids removed at the fifth month by Abdominal Hysterectomy.

Mr. J. H. TARGETT: A Pregnant Uterus Ruptured at Full Term through the Scar of a Previous Cæsarean Section removed by Abdominal Hysterectomy.

Dr. AMAND ROUTH: A Pregnant Uterus with Fibroids removed at Full Term by Abdominal Hysterectomy.

Dr. WILLIAM DUNCAN: Multiple Myxomatous Polypi from the Cervix Uteri.

OPHTHALMOLOGICAL SOCIETY.

"Holes" at the Macula.—Optic Nerve Tumour.—Pseudo-Glioma.—Alveolar Carcinoma of the Eyelid.—Exhibition of Cases and Specimens.

AN ordinary meeting of this society was held on July 6th, Mr. G. ANDERSON CRITCHETT, the President, being in the chair.

Dr. F. M. OGILVIE read a paper on one of the results of Concussion Injuries of the Eye—"Holes" at the Macula. He had collected all the published cases presenting this lesion and he divided them into two large classes: (*a*) those in which there was no detachment of the retina, and (*b*) those in which detachment was present. He showed lantern slides of the appearance of the fundus in all these cases which invariably followed concussion injuries, such as blows from blunt objects, from stones thrown from catapults, and one most interesting case he had previously shown to the society in which the injury was due to a bullet which apparently hit the back of the eye in passing through the back of the orbit. He advanced several theories to account for the holes which, as a rule, were about one and a half dioptres in depth. He summarised the conditions brought about as follows: (1) the lesions were definite and central; (2) they were the direct result of violence; (3) the injury was permanent; (4) the general disturbance of vision was not great; and (5) it was the result of concussion injury only.—Mr. ADAMS FROST endorsed all that Dr. Ogilvie had said regarding the appearance of the lesion, and in view of the fact that no case had as yet been examined pathologically he suggested that possibly a similar condition might be brought about by a like injury in the eyes of animals or in eyes recently excised.

Mr. C. DEVEREUX MARSHALL read further notes of a case of Optic Nerve Tumour previously reported to the society in November, 1899. The patient was a woman, aged 46 years, upon whom he operated at the request of Dr. Poulett Wells on Nov. 30th, 1897, when the contents of the orbit were thoroughly removed. She remained in very fair health until shortly before her death, which took place on May 4th, 1900 (two and a half years later). Owing to the kindness of Mr. Austin Reynolds who attended her up to the time of her death, which occurred very suddenly, Mr. Devereux Marshall was enabled to obtain a post-mortem examination. The necropsy was made on May 6th and the following was the condition found. On removing the calvaria the middle meningeal vessels were found to be distended and the Pacchionian bodies were very large. The cerebral convolutions were very much flattened. The optic chiasma had entirely disappeared and its place was occupied by a large diffuse and very soft tumour of about the size of a bantam's egg. So soft was it that its actual limits could not be defined, and the greater part of it could easily have been washed away with a moderately strong stream of water. The centre of the growth was the right optic tract and it spread along the chiasma, involving the optic tract and optic nerve on the left side, both of which were considerably enlarged. The tumour reached the pons on both sides, invaded the lateral and third ventricles, and on the left side the optic thalamus and corpus striatum. The growth was so very diffuse that it appeared that the third, fourth, fifth, and sixth nerves on both sides were more or less included in it. On both sides the under surfaces of the temporo-sphenoidal lobes were invaded. The tumour was still further broken down by recent hæmorrhage in the vicinity of the left optic tract. No separate deposits were found in the brain and the growth had evidently spread by continuity only. Briefly, the neoplasm seemed to be due to an immense overgrowth of the connective tissue framework of the nerve, mainly the neuroglia, but also of the more fibrous prolongations from the pial sheath. The optic nerve on the opposite side was much enlarged and on examining it microscopically the sections were seen to present precisely similar appearances to those on the right nerve which was described in the first paper. Mr. Devereux Marshall added that in the last volume of the Transactions would be found a paper by Bullar and himself, the basis of which was a case of optic nerve tumour somewhat similar to that described that evening, and at the present time (three years after removal) the patient was alive and well. In that paper the question of prognosis was fully discussed and the conclusion arrived at from published cases was that the disease, although of not

a very malignant type, could by no means be considered innocent and it was advisable to remove it as thoroughly as possible. This remark was justified by the present case where, although removed as completely as possible, the nerve was affected further back than the orbit and this was, of course, the way by which the growth reached the brain.

Mr. PERCY FLEMMING read a paper on three cases of Ophthalmitis (Pseudo-glioma) in Children. Case 1 recovered after a four months' illness, the main symptoms being irregular pyrexia, vomiting, head retraction, and diarrhœa. There was a history of convulsions and ear discharge, but no history of syphilis or acute specific fever. Case 2 died with typical posterior basic meningitis and pus in the right middle-ear. (This patient had an attack of chicken-pox four weeks after the eye became affected.) Case 3 died after an illness very similar to that of Case 1 and post mortem was found to have basic meningitis; the middle-ear was healthy. These cases, considered in relation with others published, might be taken to indicate that meningitis was the common cause of this particular form of ophthalmitis, and, further, that middle-ear disease was a likely cause of the meningitis. The following objections were urged against this view: (1) the fact that these cases in children rarely ended fatally; (2) pseudo-glioma was a rare complication of posterior basic meningitis, as was also optic neuritis; and (3) the usual unilateral character of the affection. Mr. Flemming considered that the eye condition was part of a septicæmic or pyæmic process which in most cases was limited to the eye, such cases recovering, whilst in others the meninges might be affected by the same process, these cases terminating fatally. The otitis might be the starting-point of the infection, and in any case of ophthalmitis (pseudo-glioma) it was most important to have the ear examined and even to puncture the membranes though apparently healthy.

Mr. KENNETH SCOTT and Mr. JOHN GRIFFITH contributed a paper on a case of Alveolar Carcinoma of the Eyelid which was removed from an Egyptian. The specimen on examination proved to be a carcinoma of the Meibomian glands.

The following cases and card specimens were shown:—

Mr. E. W. BREWESTON: A case of Pseudo-glioma.

Mr. W. T. HOLMES SPICER: Sections of Conjunctiva from a case of Spring Catarrh.

Mr. W. H. JESSOP: Tuberculous Ulceration of the Conjunctiva.

Mr. W. ADAMS FROST: Peculiar Crescentic Opacities in the Cornea.

Mr. TREACHER COLLINS: A case of Congenital Notch in each Lower Lid with Defective Development of the Malar Bones.

DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—A meeting of this society was held on June 28th at 20, Hanover-square, W. In the absence of the President, Dr. Payne, Vice-President, took the chair.—Dr. Eddowes showed a Case for Diagnosis. The patient was a girl, aged about 20 years, with a chronic unilateral linear non-pigmented papillomatous eruption starting from the vertebral line between the third and fourth dorsal spines and extending with some lapses of continuity across the right shoulder and down the extensor surface of the right arm on to the dorsum of the hand. It had the appearance of congenital neuropathic papilloma, but there was a very clear history that the eruption began on the hand only at the age of 10 years and was at first completely healed by treatment for eczema, which was the early diagnosis. The eruption had remained in its present condition for some eight years.—A majority of those joining in the discussion considered the case to be of the nature of ichthyosis hystrix, anomalous in its distribution and commencement.—Dr. Stowers showed: (1) A case of Hydroa Æstivale with Photographs of an analogous case previously shown; (2) Local Tuberculous Infection of the Skin in a child aged two and a half years; and (3) a Papulo-squamous Eruption on the Palms of the Hands with ulcerating nodules at the right angle of the mouth and under the right ala nasi, probably syphilitic in origin.—An interesting discussion took place on Unusual Sources of Primary Infection.—Mr. Hitchins showed a case of Maculo-anæsthetic Leprosy in a boy, aged 16 years, a native of South America. The disease was progressing rapidly.—Mr. Pernet exhibited a Microscopic Preparation from the case of Rodent Ulcer shown at the last meeting.—The next meeting of the society will be in October.

Reviews and Notices of Books.

Les Défenses Naturelles de l'Organisme. (*Natural Defensive Mechanisms of the Organism.*) Par M. le Professeur A. CHARRIN. Paris: Masson et Cie. 1898. 8vo, pp. 319.

THESE 21 lectures by Professor Charrin deal with a subject which is receiving much attention at the present moment. After some introductory remarks the author discusses the relationship of the alkalinity of the body fluids to the defensive mechanisms of the individual. In Lectures III., IV., and V. ductless glands with their internal secretions come under review. Thus a full account is given of the functions of the thyroid body and the effects produced by its removal. The relation of the suprarenal bodies to Addison's disease is also discussed, as well as the rôle played by these organs in the infections and their action upon the circulation. Lastly, the important relations of the spleen to the composition of the blood are described and the experimental work in connexion with the spleen and infection is reviewed. Lecture VI., in which are considered the effects of an increased body temperature and the methods possessed by the individuals to counteract them, is of considerable interest. In Lectures VII. to XVI., inclusive, the parts played by various organs in protection against disease are discussed. The stomach affords a striking example. The rarity with which this organ is the seat of infection proper is well recognised. Much importance has been attached in this respect to the acidity of the gastric juice, but it would appear that the active principles of this secretion can also neutralise some toxins. The relation of disease of the pancreas to diabetes is also a subject of special interest. The important part played by the liver in the protective mechanisms of the body are set out in much detail. Under the generative system the question of the internal secretions of the ovaries and testes is discussed. The methods by which harmful products are got rid of by the various organs of elimination deserve and receive here much attention. The subject of the toxicity of the urine is fully considered under this section. The protective mechanisms provided by the nervous system are largely of a reflex character. The last lecture deals with phenomena outside the individual, such as light, warmth, vaccines, &c., which assist in protecting him against disease. The path of entry of micro-organisms and the means of combating them are specially considered. The author points out that it is only when the various defensive mechanisms are defective or have deteriorated that the agents of disease enter upon the scene. This volume of lectures by Professor Charrin is not only extremely interesting, but it is instructive and very suggestive. It brings together in compact form topics upon which the writings are mostly scattered. The subject itself appeals to a wide circle of readers for it interests not only the physiologist and pathologist but also the clinician.

Les Ptoses Viscérales (*Estomac, Intestin, Rein, Foie, Rate*). *Diagnostic et Nosographie* (*Enteroptose, Hépatisme*). (*Displacements of Viscera* (*Stomach, Intestines, Kidneys, Liver, and Spleen*). *Diagnosis and Nosography—Enteroptosis, Hepatism.*) Par FRANTZ GLÉNARD. Paris: Felix Alcan. 1899. 20 francs.

IN this large octavo volume of close on 1000 pages Dr. Glénard gives us his experiences of 20 years of practice at Vichy based on the personal investigation of more than 10,000 patients. The avowed intention of the work is to establish enteroptosis as a definite morbid species, which is shown to include a vast number of diseases at present classified under the several heads—dyspepsia, neuropathies, neurasthenia, diseases of the stomach and intestine, and uterine affections. The enormous importance attributed by the author to functional and other

disorders of the liver in the causation of many of these conditions is evidenced by the fact that more than half the volume is devoted to the consideration of the disorders and displacements of this organ. In this clever and charmingly written book the reader will find a masterly if somewhat diffuse description of the physical examination of the abdomen in its minutest details. The chapter dealing with palpation of the intestine and the recognition of functional atonic narrowing of the large intestine (*entérosténose*) is particularly interesting and suggestive. The signs and symptomatology of the disorders and displacements of the stomach and of dislocations of the kidneys are fully treated, and among numerous clinical records of illustrative cases will be found a valuable epitome of all the recorded cases of floating liver (*hepatoptose*) as well as a series of 80 cases in which ptosis of the liver was associated with moveable kidney. We must refer the reader to the original for the deductions which Dr. Glénard draws from the rich store of clinical observations which he has so carefully collected and analysed.

Anatomie Clinique des Centres Nerveux. (The Clinical Anatomy of the Nervous Centres.) Par M. le Dr. GRASSET. Paris: J. B. Baillière et Fils. 1900. Pp. 96.

A KNOWLEDGE of the anatomy of the nervous system is of the first importance to the proper understanding of nervous disease, hence this small work by Dr. GRASSET, who is himself a well-known neurologist, should prove to be of considerable value. In Part I. the neuron, together with the systems which it forms and its connexions, are fully considered and the whole subsequent treatment of the subject is based on the neuron conception. In the description of the superior and inferior psychical centres this doctrine is even applied to the processes underlying the most strictly psychical phenomena. A short account is also included here of the development of the nervous system, as well as some remarks on the subject of myelinisation, or the development of the medullary sheath. In Part II. the motor and sensory cerebro-medullary paths, both direct and indirect, are described. The remaining sections are allotted to the central nervous apparatus for vision, hearing, taste, and speech, and for the circulation, secretions, respiration, and digestion. This small book will be found to contain much useful information which will facilitate the study of nervous disease.

LIBRARY TABLE.

Laboratory Note-book for Chemical Students. By VIVIAN B. LEWES and J. S. S. BRAME. London: A. Constable and Co. 1900. Pp. 170. Price 4*s.*—Chemical work of any kind is of very little use to the student unless it is accompanied by intelligent and systematic note-taking. If this is true of the theoretical portion of chemistry it is doubly so in the case of experimental work, and Messrs. Lewes and Brame are to be congratulated in their attempt to supply a suitable book for the purpose. In their preface the authors state that their Note-book has been compiled without reference to any particular syllabus or examination and that it is intended to cover such practical work as a student should be familiar with if he is to have a good groundwork in the subject of practical chemistry. Although not written in any sense for a special examination there is no doubt that it will be found extremely useful to candidates for the Preliminary Science Examination London, and, indeed, for any other examinations where the preparation of certain gases and salts together with a little elementary volumetric analysis are a *sine quâ non*. The pages are interleaved throughout for the students' own notes. A section of a more advanced character at the end of the book deals with the preliminary examination of water, oils, and explosives, written more especially for the benefit of naval, engineering, and mining students.

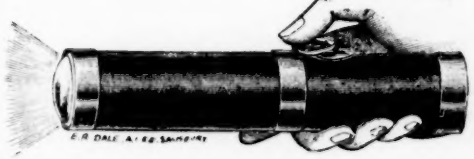
Gynæcological Nursing. By G. A. HAWKINS-AMBLER, F.R.C.S. Edin. London: The Scientific Press, Limited. 1900. Small crown 8vo. Pp. 93. Price 1*s.*—This little book contains a very practical and good account of the special details of gynæcological nursing. The duties of the nurse are given clearly and succinctly and cannot fail to be of service to those who are engaged in such special work. We are surprised to see, however, in the midst of so much that is good a description of the method of passing the catheter by touch, a custom which we thought was fast becoming obsolete. The observations of the author upon the personal hygiene and the special qualifications required from nurses engaged in gynæcological nursing are especially apt and to the point.

The Bubonic Plague. A Popular Lecture by Professor ANDERSON STUART.—Dr. Anderson Stuart has republished in pamphlet form a lecture recently delivered by him in Sydney. It is a clear and brief account of the plague, going as far into the etiology and pathology as the popular nature of the lecture allows, and explaining with a remarkable absence of technical phraseology the work of Yersin, Haffkine, and others. We hope that the lecture has obtained the wide circulation that it deserves, for undoubtedly it is good that people should know the measure of the risk that they run by the non-observance of medical regulations.

New Inventions.

THE "EVER READY" ELECTRIC LIGHT.

THIS is a handy little lamp, made in various sizes from three and a half to five and a half voltage and worked by a dry cell. Contact is made by pressing a ring down upon a spring. The whole is inclosed in a neat case and the cell is stated to have a life sufficient to give from 6000 to 8000 lights before requiring renewal. This of course is a hopelessly vague statement, for the life of the cell will entirely



depend upon the length of time for which the lamp is kept burning. The appliance, however, will be found convenient. It is made by Mr. E. R. Dale, 89, Fisherton-street, Salisbury. Mr. Dale, we see, calls himself a medical electrician as well as an electric light contractor. If this means only that he makes electrical medical apparatus—and we presume that Mr. Dale is not a medical man—he should state the fact in different words.

THE CAMBRIDGE SENTINEL PATENT DOMESTIC MILK STERILISER.

THIS is an ingenious invention for ensuring that milk when being sterilised by heat shall not be boiled—in other words, when the temperature reaches 185° F. the process of heating is stopped. The steriliser is made in two forms. In the one the heating is done by means of a gas stove in which upon the temperature reaching 185° the gas is automatically cut off. The other form which is for use with an ordinary fire cannot, of course, cut off the heat-supply, but when the desired point is reached a bell rings and so calls attention to the fact that a temperature of 185° has been reached. The apparatus is extremely simple and there are no complicated parts to get out of order. The apparatus can be obtained from the Sentinel Co., Limited, Cambridge. The saucepan is made of enamelled iron and the prices vary from 17*s.* 6*d.* for a six-pint pan with stove to 6*s.* 6*d.* for a one pint pan without stove for use on a fire.

THE LANCET.

LONDON: SATURDAY, JULY 14, 1900.

IN order to get a clear notion of the situation which has been brought about by Mr. BURDETT-COUTTS'S letter in the *Times* of June 27th last it is necessary to enter upon a brief description and recapitulation of what has since taken place. The main facts are, in our opinion, sufficiently clear. There was a serious outbreak of enteric fever among the troops in the Orange River Colony during the month of April, and we are content to accept in the meantime, and until it has been disproved, Mr. BURDETT-COUTTS'S statement in regard to what he saw at Bloemfontein on April 28th and subsequently. Bloemfontein, it will be remembered, was occupied by our troops on March 13th. They arrived there in a physically exhausted condition after a series of forced marches and after having altogether distanced their supplies. They became dependent upon a thin and precarious line of transport. An outbreak of enteric fever occurred and the medical service, overwhelmed by the amount and explosive nature of the epidemic, for a time had not the means of coping with it. This gave rise to the overcrowding and the lamentable suffering and occurrences described by Mr. BURDETT-COUTTS. We may set aside all the testimony of correspondents and others descriptive of their experience at other times and places as irrelevant and therefore worthless. The only questions are whether the emergency could, in the first instance, have been prevented, and secondly, whether, having arisen, everything was afterwards done as promptly as practicable to meet it. With regard to the second question Mr. BURDETT-COUTTS plainly implied that in his opinion such was not the case, and he has urged that if one day's trains on the railway had been utilised for getting up hospital stores the whole position of the sick and wounded would have been saved. This is a matter that has to be thoroughly gone into.

In the debate in the House of Commons on June 29th which followed upon the publication of Mr. BURDETT-COUTTS'S letter Mr. WYNDHAM gave a very able and lucid statement in explanation of affairs in South Africa. He spoke in defence of the Government and those concerned as far as the information in his possession enabled him to do so. Mr. BALFOUR, in a speech which was not devoid of asperity, held that the charges raised by Mr. BURDETT-COUTTS involved a question of transport. After Lord ROBERTS had made his remarkable march to Bloemfontein, said Mr. BALFOUR, he had to depend upon a very precarious transport, and the preventability or inevitability of the enteric fever among the troops turned upon how Lord ROBERTS or his subordinates used this transport. Here we may remark that, as far as we can see, there is really no occasion for any persons to shelter themselves behind the well-known popularity of Lord ROBERTS. It is a question of fact about which the commission going to South Africa will have to inquire. If the army medical authorities failed to represent the pressing urgency of the case they must of course take the consequences; whereas if the military authorities assumed the responsibility of overruling them and of using the transport in such a way as to be of no service to the medical service no blame can obviously in that case be attached to the medical service. It is only fair to say that there seems to be no question that the troops were in a miserable plight on their arrival at Bloemfontein—they and their horses were half-starved. Soldiers cannot fight unless they are properly fed and supplied with ammunition, and unless the military machine is in an effective state the safety of the whole force, sick and well, may be jeopardised. It is clear that in an emergency of this kind the medical equipment would have to rank after and not with the food-supply of an army.

Next came the appointment of a commission with the following reference: "To report on the arrangements for the care and treatment of the sick and wounded during the South African campaign." It should be added that Mr. ARNOLD-FORSTER asked, "Does the reference include the power of inquiry into the organisation of the Army Medical Department?" and was told in reply that the question was not referred to the commission but that no doubt the finding would have a bearing on it. The names of three commissioners were originally proposed—viz., Lord Justice ROMER; Dr. W. S. CHURCH, the President of the Royal College of Physicians of London; and Dr. D. J. CUNNINGHAM, Professor of Anatomy and Surgery, Trinity College, Dublin. No objection was raised on the score of their ability. The selection of a lawyer of the great eminence and business qualifications of Lord Justice ROMER, accustomed to and able to instruct those associated with him in the laws of evidence and in the testing and sifting of it, was felt to be very appropriate, while the official positions of the two medical men spoke for their reputations. But the feeling of the House was strongly against having the commission so small, and many Members held it to be a serious mistake on the part of the Government to have allowed a preponderance of medical men on it. Mr. BALFOUR attempted to support his original proposition, but had to yield the point in deference to the opinion of the House and the commission of three was increased to five. There can be no possible objection to the increase of the lay element on the commission, although we cannot see why members of the medical profession should not bring absolutely honest and impartial minds, together with common sense and experience of life, to the task. We have no desire to see any undue preponderance of the medical element on the commission. But we are not satisfied with its constitution and, such being the case, we are bound to state our reasons.

In the first place, there is such a thing as sacrificing efficiency to a fastidious sense of impartiality. There is no representative of the Army Medical Service on the commission who could, by his technical knowledge and

experience of army life, keep the commission informed on all points connected with the organisation, equipment, system, and methods of procedure adopted on field service, the reasons for their existence, and how far they are in conformity or not with those of all other European armies. It may be said that there was no necessity for such an appointment seeing that there were any number of medical officers in South Africa who could be summoned to give their evidence on such matters. This is practically tantamount to saying that the commission would be learning their business during their inquiry, and this is a thing which too many of our commissions are content to do. The special knowledge of a medical officer of ability and independence would be of immense value in facilitating the business of the inquiry and in indicating the nature and bearing of many of the questions that will have to be put. If no such officer is appointed on the commission we think it very desirable that such an officer should be called in as an assessor who need take no part in the deliberations and need not sign the report. If the commission can make any suggestions for improving the organisation of the Royal Army Medical Corps, or for providing a better hospital service than the present one, without gravely prejudicing the mobility of the army on a campaign, we can answer for it that there is no section of the community which will be more grateful to them than the medical profession. Any such suggestions could probably be more thoroughly considered and worked out subsequently. With this very practical end in view it seems to us that the aid of a man with some army experience is an essential matter.

Lord Justice ROMER is, as we have said, an unexceptionable choice. Dr. CHURCH, occupying the highest professional position as President of the Royal College of Physicians of London and as a physician on the staff of a hospital like that of St. Bartholomew's, in addition to enjoying the reputation of being an excellent man of business, unites all the necessary qualifications for the task before him. Concerning the third commissioner as yet selected we have some delicacy in expressing an opinion. No one can recognise more fully than we do the great reputation and scientific attainments and ability of the Professor of Anatomy and Surgery in Trinity College, Dublin, but we feel sure that we shall not be misunderstood in saying that the inquiry in South Africa does not seem to us to be one calling for his special gifts. Rather it demands the exercise of qualities of another kind and occupying a distinctly lower level, and not necessarily a scientific one even. With all possible respect for Professor CUNNINGHAM we must confess that we do not see his especial claim to be a commissioner, and we say this without laying any stress upon his official connexion with the Army Medical Service to which attention has been pointedly drawn. But in addition to the present commissioners we think it highly desirable that the services of a traffic manager of one of our great railways should, if possible, be secured. Such a man is sure to be a man of business capacity and common sense or he would not be where he is—in the position of traffic manager—and his practical experience and intimate acquaintance with systems of railway organisation would be invaluable in an inquiry of this kind. We hope that one at least of the two commissioners to be added will be a man of tried capacity in business affairs, preferably in railway transport.

SINCE the well-known description in the "Surgeon's Daughter" by Sir WALTER SCOTT of the medical practitioner, "from whom Scotland reaps more benefits and to whom she is perhaps more ungrateful than to any other class of men, excepting her schoolmasters," there have been few more eloquently simple accounts of the lot of the Scottish village practitioner than is contained in a memorial to the Local Government Board of Scotland, signed by 40 medical officers of the more remote parishes of the Highlands and Islands of Scotland which we publish in our columns this week (page 129). "Besides," says Sir WALTER SCOTT, "attending to such cases as the village may afford he is day and night at the service of anyone who may command his assistance within a circle of 40 miles in diameter, untraversed by roads in many directions, and including moors, mountains, rivers, and lakes. For such work the village doctor receives at best a very moderate recompense, often one which is totally inadequate, and very frequently none at all." No wonder that MUNGO PARK told Sir WALTER SCOTT that after trying both courses of life he preferred "travelling as a discoverer in Africa to wandering by night and day the wilds of his native land in the capacity of a country medical practitioner."

The memorial of the Scottish medical officers of the more remote Highlands and Islands shows that there is little improvement in the position of the medical man as compared with what it was in MUNGO PARK'S time. The wealth of Scotland has enormously increased. She has spent millions of money in the vindication of religious sentiment or principle. But she has made little advance throughout these remote regions in the treatment of her poor or in the remuneration of the medical men who attend them. This subject is not new to us. We have on several occasions tried to direct the attention of the medical profession of Scotland, as well as that of her statesmen, to the lamentably defective provision in these districts for the care of the poor in respect of nursing and medical attendance. There is, for example, no isolation whatever of infectious cases. The neglect of such provisions by the responsible authorities of Scotland has had a demoralising effect on the people themselves—religious and decent as they are—so that on some occasions and in certain districts those affected with fever have been left to die alone, forsaken by their very relations and with none to give them a drink of water or, in the event of death, to put them into their coffins. Only the medical man. And we cannot altogether acquit the profession itself of blame. A little more assertion of its own claims and a little more publicity thrown upon the discreditable plight of the sick in their wretched and unhygienic homes would have been justified, and might have deprived the authorities of Scotland, imperial or municipal, of any excuse that they may now have for so long leaving enormous districts in ignorance of sanitation and with very imperfect means of battling with tuberculosis and infectious diseases. There is one difference between the Scotland of to-day and

that of Sir WALTER SCOTT and MUNGO PARK. In their time the organised system of relief by poor-laws scarcely existed. Men like the late Dr. CHALMERS believed in the sufficiency of the principle of humanity acting voluntarily and for the most part through churches. But now the legal system of relief of poverty and sickness has been generally introduced, and we must attribute its defects mainly to the municipal and State authorities. Such authorities will doubtless argue that they only represent the community for which they act. And they will argue rightly. Nobody can doubt that if half the enthusiasm were shown by the people of Scotland in the provision of proper medical care for the poor in remote parts that is shown in providing for their spiritual wants their condition in respect of preventable sickness and mortality would be very different from what it is, and the medical men who wander over these wide districts would be more respected and better remunerated than they are.

The memorial may be taken as a sign that the medical officers themselves who are the agents of this system of relief are beginning to realise its defects. There can be but one opinion as to the hardness of their lot, the responsibility of their duties, and the inadequacy of their pay. Liable to calls in all weathers, in all seasons, over areas of 30 or 40 miles, sometimes unable to return home the same night, and with little chance of earning more than from £20 to £50 a year beyond their official parochial salary, their case is indeed entitled to consideration in many more respects than that which they specify. They ask only for the provision of a locum-tenent for a month, which would enable them to seek rest and refreshment in an annual holiday. We endorse every word of their memorial, only finding it too restricted in its points of complaint. The sick poor of these remote regions will not be properly treated until much more is done to improve the medical officer's position than is implied in supplying him with a locum-tenent. His whole status needs improvement, coupled with the security of tenure of office. Meantime he has made the most modest request possible for an advantage already conceded to dispensary medical officers of Ireland. We cannot doubt that it will be granted. The demand is the more reasonable as the value of locum-tenents has risen much of late, and, indeed, has reached a point beyond the means of the underpaid officers of the Scotch Poor-law. We have only to repeat that they owe it to themselves and to the poor of these districts to ask for many other improvements in their position beyond the solitary one included in their memorial.

EVER since the differentiation of the disease usually known as rötheln, or German measles, from scarlet fever and measles was first attempted in Germany towards the end of the eighteenth century various and conflicting views have been held by the medical profession as to its essential nature and clinical manifestations. It must appear obvious to any unprejudiced observer, as was suggestively pointed out by the late Dr. HILTON FAGGE, that the severe and frequently fatal affection described by PATTERSON of Leith in 1840, following the earlier German writers, and later by AITKEN and COPLAND, can have but little in common with the mild disorder described by THOMAS in ZIEMSSEN'S *Handbuch* some 30 years afterwards, which is more in accord with the observations of writers of the present day. So contradictory are the two accounts that it is impossible to regard them both as applicable to the same disease. Admitting, however, the general appropriateness of this modern conception of rötheln as we know it to-day we are confronted with the fact—and it is a most unfortunate one—that considerable discrepancies occur in the clinical descriptions of the disease emanating from different though equally competent observers. In other words, there exists even at the present day an undoubted want of agreement as to what constitute the distinctive symptoms of rötheln. In its clinical appearances the affection presents certain features which closely simulate both scarlet fever and measles. For this reason rötheln has been variously held to be a modified form both of measles and of scarlet fever, as well as a hybrid of the two infections. Each of these views is now regarded as untenable and the disease for some years past has been almost universally held to be a specific entity, having just as much claim to separate recognition as either measles or scarlet fever. We publish this week a communication from Dr. CLEMENT DUKES of Rugby in which he brings forward what are undoubtedly cogent reasons for revising our views as to the position of rötheln. The exceptional opportunities for observing the exanthemata which Dr. DUKES has enjoyed for many years as responsible medical officer to one of our largest public schools, and the special interest which he is known to have devoted to the clinical interpretation of this particular disease, entitle him to speak with more than ordinary authority.

Dr. DUKES'S main contention is that under the term "rubella," of which the other synonyms authorised by the Royal College of Physicians of London in the last edition of the "Nomenclature of Diseases" are "rötheln," "German measles," and "epidemic roseola," there are included two separate infections, each of which is etiologically and pathologically distinct; though hitherto, mainly in consequence of the close similarity of their clinical appearances, they have been almost universally confused. Their occasional concurrence in epidemic form would doubtless contribute in some degree to this confusion by tending to delay their separate identification, as has certainly been the case in respect to rubella when it has prevailed simultaneously with scarlet fever or measles. If Dr. DUKES is right in his contention that two perfectly distinct diseases have hitherto been classed under the term "rötheln," both of which are capable of propagation and invariably "breed true," we must recognise the presence amongst us of an additional specific fever which, like other members of the group, while affording protection against a second attack, confers no immunity whatever against the infection of any other disease. Dr. DUKES does not claim any novelty for the idea that two separate diseases are classified under the name "rötheln"; indeed, he himself, writing in 1894, distinctly refers to it. Moreover, the Council of the Medical Officers of Schools Association in a recent circular suggested that certain groups of cases to which they applied the name "infectious roseola," being of a particularly mild character

and unattended with obvious catarrh or definite faucial or glandular involvement, were really distinct from rubella though usually confused with it. Dr. DUKES states that though the question had frequently presented itself to his mind he had signally failed to establish a single fact to sustain the hypothesis, but that increased observation and extended experience have now convinced him to the contrary.

Although by those who enjoy exceptional facilities for observing the course and development of infective diseases amongst the young this pronouncement of Dr. DUKES may not be altogether unexpected, we imagine that to the profession at large the addition of one more exanthem to the recognised list will come with something of a shock. Dr. DUKES provisionally names it the "fourth disease" by reason of its admitted resemblance to scarlet fever, measles, and rötheln, which are already sufficiently confusing. The increased possibilities of mistake which the addition of a "fourth disease" implies are more than counterbalanced by the light which it undoubtedly sheds on what has hitherto proved the greatest stumbling-block to diagnosis in this particular field—viz., the confusing resemblance which rötheln bears alike to measles and to scarlet fever. The fact is so well recognised that it is customary to speak of the "measles type" and the "scarlet fever type" of the disease. Now, according to Dr. DUKES's proposition the cases of the scarlatinal type are not rötheln at all, but instances of another affection—viz., the "fourth disease." Dr. DUKES is unfortunately obliged to admit that its resemblance to scarlet fever is so close as to make its recognition occasionally impossible and that a series of cases may be necessary conclusively to establish the diagnosis. For this reason he believes that innumerable cases of the "fourth disease" have been ascribed to scarlet fever, a suggestion which, if true, is of considerable importance. Its differentiation from rötheln, too, is frequently very difficult owing to the similarity of their symptoms, and the difficulty is increased not only in consequence of their period of incubation being almost identical, but also by reason of the fact that the two diseases are sometimes locally concurrent.

Let us now briefly review the evidence on which Dr. DUKES bases his belief that these cases are essentially distinct from rubella or German measles. The rash, though closely resembling that of rubella during its later stage by reason of its presenting a diffuse puncto-erythematous appearance, differs from it in that it does not pass through a stage of morbilliform maculation but assumes the scarlatinal characters from the outset. Distinct redness and swelling of the fauces sufficient to give them a velvety appearance are usually present, though attended with but little, if any, faucial discomfort. The cervical lymphatic glands are somewhat enlarged and tender, but though the enlargement is more pronounced than in scarlet fever it is usually less conspicuous than is the case in rubella, in which disease it is not very uncommon for the patient to complain of tenderness of the cervical chain for several days before the rash appears. In most cases the patient desquamates freely, the epidermis being shed in small scales, but in occasional instances the peeling appears to be as copious and complete as it ever is in scarlet fever. The disease occurs in patients who have previously, even recently, suffered from undoubted rötheln. This constitutes the strongest argument of all. Indeed, it was from personal observation of an epidemic at Rugby School last March that Dr. DUKES became convinced of the separate nature of the two disorders. Out of a consecutive series of 20 cases which displayed the symptoms characteristic of this "fourth disease" no fewer than nine of the boys—that is to say, 45 per cent.—had previously suffered from rötheln, some of them within the previous 12 months. An interesting point confirmatory of its being distinct from rötheln is that while rötheln, like measles, tends to affect large numbers in a school, the disease in question, like scarlet fever, always occurs to a much more limited extent—a fact which tends to show that it is less infectious at an early stage than rötheln.

In the differentiation of the "fourth disease" from scarlet fever the main difficulty lies in the extraordinarily close resemblance which exists between their respective eruptions. In each case the rash is followed by free desquamation and, according to Dr. DUKES, in exceptional instances of the "fourth disease" the peeling may be as profuse and protracted as it is in any case of scarlet fever. It is stated that the degree of peeling bears no relation to the intensity of the pre-existent eruption. In this respect, then, the "fourth disease" differs from scarlet fever. We gather that Dr. DUKES would place also some weight on the following points as serving to distinguish the "fourth disease" from scarlet fever. The incubation is considerably more prolonged—viz., from nine to 21 days; whereas in scarlet fever it is usually two days and rarely exceeds five days. It is suggested that the frequent confusion of the two diseases in practice may be accountable for the misleading statements in some of the text-books as to the occasional prolongation of the period of incubation in scarlet fever. There is usually no pre-eruptive illness, the invasion being unattended with either vomiting or faucial discomfort. The pulse-rate rarely reaches 100. This is in marked contrast to the relatively rapid pulse of early scarlet fever. The fauces are simply reddened. They are never really inflamed even should the rash be intense, which is by no means uncommon. The tongue shows no definite peeling but cleans in normal fashion; hence the "strawberry" tongue is wanting. The cervical lymphatic glands are always enlarged and tender, but not to the same extent as they usually are in rötheln. The kidneys are not affected; neither albuminuria nor nephritis are liable to arise. No immunity is conferred against a subsequent attack of scarlet fever and the period of infectivity is said to last but from 14 to 21 days, though desquamation may proceed for several weeks longer. Such are the points which are mainly concerned in the clinical differentiation of the "fourth disease" from rötheln and from scarlet fever.

Dr. DUKES recognised as far back, at any rate, as 1892 that there exists a disease so closely resembling scarlet fever as to be frequently mistaken for it even when prevailing as an epidemic. This affection he at that time regarded as the scarlatinal variety of rötheln. Subsequently, in 1896, in connexion with a most confusing outbreak in a school which he investigated with striking ability and marked success, Dr. DUKES elucidated the

important fact that this disease, which closely simulated scarlet fever, was prevailing concurrently with that affection. Since neither disease afforded protection against the other, as evidenced by the fact that 32 per cent. of the patients developed both of them in turn, the inference was certainly justified that the disease which formed the subject of investigation was specifically distinct from scarlet fever. Again, as recently as March, 1900, as a result of his inquiries into an outbreak at Rugby School of what was apparently the same disease, Dr. DUKES found that no less than 42 per cent. of the boys attacked had previously suffered from rötheln—a fact which made it more than probable that the disease in question was quite distinct from rötheln. Two points, then, may be regarded as proved. First, that the epidemic investigated in 1896 was not scarlet fever; and, secondly, that the outbreak at Rugby School inquired into last March was not rötheln; but whether, as is believed by Dr. DUKES, the disease was in each instance the same is not, we think, so conclusively proved, although its demonstration constitutes an important link in the argument by which he claims to have established the specific independence of the "fourth disease." The question as to whether the Rugby epidemic of last March may not have been after all a mild form of scarlet fever is one which appears to present some claim for consideration, since a remarkable constancy of type is occasionally observed in connexion with a localised prevalence of the disease. Dr. DUKES admits that the illness resembled scarlet fever more closely than any series of cases he had yet seen, that he had never observed such extensive desquamation except in scarlet fever, that none of the patients had previously suffered from that disease, and that the length of incubation in these attacks could not be ascertained. The force of these objections cannot be altogether ignored. Moreover, the negative aspect of some of the symptoms described—viz., the absence of definite faucial inflammation and, under these circumstances, of definite peeling of the tongue, the return of normal temperature by the third or fourth day, the freedom from kidney complication, and the apparent lack of infectivity after the third week—are all consistent with mild scarlet fever. This point is one of considerable interest, since the infectivity of the later peeling after scarlet fever has been much questioned during recent years. Any advance in our knowledge of what is and what is not scarlet fever is a valuable step in the right direction as tending without doubt to enhance professional credit and promote the welfare of schools; in addition to which, as Dr. DUKES very rightly and with much force points out, if a more accurate diagnosis is competent to effect a curtailment by two-thirds of the period of isolation hitherto deemed necessary for many of the cases which we have been accustomed to regard as scarlet fever, the proportionate saving of inconvenience and expense to the community must of necessity be considerable.

Dr. DUKES offers the suggestion that the wide extension of scarlet fever which was observed throughout the country during the winter of 1892 and the spring of 1893 may have been really dependent on the epidemic prevalence of the "fourth disease," and in confirmation of this view he instances the low mortality which characterised the outbreak. So far as London is concerned this view is not supported, for though the numbers admitted into the metropolitan fever hospitals during 1892 and 1893 considerably exceeded those of any former years the death-rate showed no corresponding reduction. But having regard to the relatively large proportion of cases certified as scarlet fever which are now received into the public hospitals the question as to whether the period of detention might not in many cases be reduced by some two-thirds is one of municipal importance as directly affecting the pockets of the ratepayers, both in respect to maintenance charges and the necessity for providing further isolation accommodation.

Dr. DUKES has done good service to the profession, and indirectly to the public, by showing most conclusively that there exists a disease which so nearly resembles scarlet fever as to have been frequently mistaken for it even when the opportunity has occurred of observing a multiplicity of cases; but whether this affection is specifically distinct, and not a form of German measles as is currently believed, is a point on which we think it right to suspend judgment for the present. Further critical observation, however, of the points so clearly indicated by Dr. DUKES may ultimately succeed in establishing this proposition.

Annotations.

"Ne quid nimis."

THE NEW UNIVERSITY OF LONDON.

THE history of the various stages in the movement for the formation of a Teaching University in London in the place of an Imperial degree-giving establishment has been fully placed before our readers. A complete sketch of its various details from 1864 to the appointment of Lord Davey's Statutory Commission in August, 1898, will be found in our Students' Number of Sept. 3rd, 1898. The new statutes were sealed by the order of the Commissioners on Feb. 13th, 1900, and the regulations were ordered by the House of Commons to be printed on March 1st, 1900. The statutes and regulations have now passed through Parliament, and we congratulate the Commissioners on the thorough and rapid manner in which they have carried out their part of the work. We trust that the machinery recommended by the Commissioners will as rapidly come into being and so speedily complete its various duties. The Senators (16) elected by Convocation will probably be chosen in October.

PLAGUE IN TURKEY.

THE first case of illness which gave rise to an alarm of plague in Smyrna has already been described in THE LANCET of May 19th (p. 1456) and June 9th (p. 1672). It was on May 5th that Dr. Amado of Smyrna first saw the patient and he immediately notified the case to the local *médecin sanitaire*. On May 27th Dr. Corris, also of Smyrna, met with a second instance of suspected plague. The patient was a man, aged 23 years, who had a temperature of 40·5° C. (105° F.) and a pulse of 120 per minute; he suffered from intense headache, vomiting, mental apathy with inability to answer questions, flushed face, and an inguinal bubo on the right side of the size of a small egg and painful when touched. There was no apparent lesion which might have caused the bubo. On the following day (May 28th) the patient was

somewhat better, but on a more careful examination it was found that instead of one bubo there were four enlarged glands—one in Scarpa's triangle, two above Poupart's ligament, and one above the pubes. The two patients lived about 400 yards apart. On June 7th a third case of suspected plague was discovered, the patient being a lad, 14 years of age, a Mohammedan servant in a Mohammedan house in the Turkish quarter far from the neighbourhood of the previous cases. His symptoms were a temperature of 38° C., a pulse of 90 per minute, an enlarged gland in Scarpa's triangle of the size of a pigeon's egg and painful when touched, and three enlarged glands above Poupart's ligament. Although the symptoms were not pathognomonic of plague the patients were isolated outside the city on a hill at Kiatipoglu. On the first case being reported to the authorities at Constantinople the Inspector-General of the sanitary service and Dr. Nicol, the director of the Pasteur Institute at Constantinople, were ordered to proceed to Smyrna to make investigations. Dr. Nicol and Dr. Nouri Bey were unable to find plague bacilli in the enlarged glands of the patients, but cultures showed the bacilli after three days' growth, and the same cultures produced characteristic lesions in rabbits. On June 6th and June 11th the *médecin sanitaire* at Trebizond reported two suspected cases of plague, one a man, aged 70 years, a pilgrim just returned from Mecca, and the other, a girl, aged five years, the daughter of a boatman. There was no bacteriologist at Trebizond, but one has been sent there from Constantinople. The precautions taken by the authorities are limited to quarantine and nothing is being done to improve the sanitary condition of the towns.

PYORRHŒA ALVEOLARIS.

AT a recent meeting of the Royal Medical and Chirurgical Society Mr. Rickman Godlee drew attention to that condition of the gums which is termed "pyorrhœa alveolaris." The medical profession has so far given but scant attention to this distressing condition, and the gums as a possible focus of infection have been almost, if not entirely, overlooked. Conditions which lead to the loss of teeth at an early age owing to a gradual but progressive destruction of the periodontal membrane have greatly increased in recent years. This destruction of the periodontal membrane is, as far as present knowledge shows, due to an inflammation commencing around the necks of the teeth and spreading towards the apices. All the teeth may be affected by the disease or the condition may be limited to a few teeth or even to one. In some patients the disease progresses slowly, and although pus may be present in small quantities it is not easily recognised. In other cases the destruction of the periodontal membrane is rapid and accompanied by much congestion of the gums and a copious discharge of pus from the tooth-sockets. The constant swallowing of so much pus may give rise to infective gastritis and other conditions traceable to the presence of pyogenic organisms. The importance of this to medical men is obvious. In the four cases recorded by Mr. Rickman Godlee the absorption of the pus from the mouth seems to have played an important part in the causation of the conditions recorded, since on the flow of pus from the gums being checked the general condition of the patient considerably improved. Dr. William Hunter, too, has recently shown that there are strong reasons for believing that some cases of pernicious anæmia are traceable to absorption of septic and infective material from the oral cavity. Within the last few years an abundance of literature has appeared dealing with the etiology of this disease. In reading this through it is evident that the term "pyorrhœa alveolaris" is differently used by different writers. Some include under this term only that condition where suppuration is present (true pyorrhœa alveolaris), while others include all conditions where the gums are receding. Among the latter many cases are due not so much to a suppurative inflammation as to degeneration and atrophy of the tooth attachments. There is also a divergence of opinion as to whether the disease is local or general in its origin. If the majority of patients suffering from pyorrhœa be examined it will be found that they are the subjects of some diathesis, such as gout or rheumatism, or are suffering from conditions which tend to lower the general vitality of the tissues, more especially fibrous tissues. These conditions may be regarded as predisposing causes, the actual disease being started by some local irritant, such as the deposit of tartar, or an anhygienic condition of the mouth, or a badly fitting denture. When once the inflammatory process is started it is not difficult to understand that suppuration may take place when it is remembered that pyogenic organisms, more especially the streptococcus brevis, are present in nearly all mouths in which there is caries. Dr. Miller of Berlin has made a careful bacteriological examination of the discharges from cases of pyorrhœa alveolaris with the object of determining the presence of a specific micro-organism. He has been unable to find such an organism but has found that the organisms present possessed well-marked pyogenic properties. In the light of our present knowledge pyorrhœa alveolaris should perhaps be regarded as suppurative periodontitis. Pyorrhœa is an insidious and in many ways an intractable disease. If, however, it is recognised at the onset and properly treated it may be held in check and the teeth may be saved for many years. The signs of the disease are a soft, flabby condition of the gums which are also deeply congested and tender. The teeth are unduly moveable in their sockets, and on gently pressing the gums pus will be noticed to flow freely from around their necks. On closer examination it will be found that a fine probe can be passed some distance up the sockets of the teeth showing that the periodontal membrane has been stripped off. A deposit of tartar is nearly always present around the necks of the teeth. The treatment should consist in the removal of all hard deposits from the roots of the teeth. This should be followed by thorough irrigation of each tooth socket with some antiseptic and for this purpose peroxide of hydrogen (20 volumes) is excellent. The inflammatory condition of the gums must be treated with astringents. Local treatment carried out regularly on the lines indicated, with attention to the general condition of the patient, will produce a considerable improvement in most cases.

COAL SMOKE ABATEMENT: THE CLAIMS OF AN INVENTION.

THE smoke question has assumed such proportions that any mechanical arrangement for the suppression or abatement of the nuisance naturally commands attention. We are informed that Sir William Richmond, the President of the Smoke Abatement Society, accompanied by Mr. Arthur Ventriss, surveyor and engineer to the Strand District Board of Works, Mr. Edward Turner Atkinson, mechanical engineer to the London County Council, Mr. Samuel Goodall, of the Acton District Council, and other gentlemen, including several medical officers of health and a number of officers of the different sanitary authorities, met recently to inspect some machines supplied by Messrs. Ransomes and Rapier which were on view at the premises of Messrs. Taylor Bros., cocoa manufacturers, Brick-lane, E. The inspectors are said to have been satisfied that there was absolutely no visible smoke where the machine was employed, which sounds too good to be true. Mr. Churchill, one of the directors of Messrs. Taylor Bros., claimed that by the use of the machine increased economy and

efficiency to the extent of 25 per cent. resulted and that there was almost a complete immunity from wear and tear, the machines in two and a half years not having cost a penny in repairs, every part, bars included, being in as good condition as when first put in. The coal used was small Derbyshire, that previously used being best Welsh coal. Mr. Atkinson, who is admittedly an expert on this subject, having put a number of searching questions to the engineer in charge and made an exhaustive examination of the machine, expressed himself as perfectly satisfied, and was of opinion that an apparatus was now before the public which would not only enable steam-users to comply with the provisions of the Act for the prevention of smoke, but which it would actually be to their interest, both as regards saving in coal and extra boiler duty, to adopt at their works. We understand that these mechanical stokers are being extensively used both in London and the large manufacturing towns.

MEDICAL MEN AS CORONERS.

MR. F. W. LOWNDES, chief surgeon to the Liverpool police, has re-issued his pamphlet entitled, "Reasons why the Office of Coroner should be held by a Member of the Medical Profession." He gives his reasons clearly and we find ourselves in accord with his arguments, while we are naturally interested in his illustrations of the advantage of medical training to a coroner, seeing that he cites two inquests held before the late Thomas Wakley—the well-known Hounslow flogging case and the Hillingdon case of 1850—in the course of the latter of which investigations a further examination made at the coroner's suggestion of the throat of a man supposed to have died as the result of a fight disclosed a piece of meat which had lodged so as to choke him. Unless this further examination had been brought about before the body was buried an innocent man might have been committed to take his trial for manslaughter. It is contended by some that the coroner should be a trained lawyer, but it was the opinion of the late Mr. Wakley that enough law for the necessary purposes of the office could be acquired in a day, and we see no reason materially to modify this opinion; although, no doubt, a barrister of some standing, who has enjoyed a practice, may have had useful experience in dealing with witnesses and juries and in the understanding of statutes and decisions—so that the ideal coroner would no doubt be one trained both as a lawyer and a medical man. In support of the medical coroner Mr. Lowndes calls attention to the fact that the coroner's first duty—and a very important one—is to decide when a death is reported to him whether the cause of it is unknown or whether it has otherwise taken place in such circumstances that an inquest need be held. For arriving at a correct decision upon this point the best equipment must of necessity be a medical training; while, again, when the inquiry is being held the medical training of the coroner is essential if the viewing of the body by coroner and jury, obligatory by law, is not to be, as it often is, a meaningless formality. We are aware that the holding of an inquest may involve the committal for trial of a person supposed to be criminally responsible for the death inquired into. Persons are, however, very often committed for murder and manslaughter by magistrates of no legal education and less experience than a coroner should gain after a few months' work, while the cases in which such committals take place at the hands of the coroner form a smaller proportion of the number of inquests held than many suppose. According to the latest blue-book on the subject in 1898 inquests were held in England and Wales on 34,541 persons and only in 3210 cases was death found to be due to wilful or criminal acts, while of these 3210 cases 2881 were suicides. The remainder included 169 cases of murder, 145 cases of manslaughter, five cases of justifiable homicide, and 10 executions. Again, if any still think that the committal of a prisoner to take his trial for murder or manslaughter by a person not a lawyer may involve a danger to the public, we must point out that although a prisoner may in law be put upon his trial upon the coroner's inquisition only without further preliminary, he is always also examined before a magistrate or magistrates. Before the magistrate only such evidence may be given as is legally evidence against the accused, excluding much that may quite properly be relevant at the coroner's inquiry into the cause of death, and the magistrate may not think the evidence sufficient to justify a committal. Should the magistrate commit the prisoner for trial a bill of indictment is then sent before the grand jury at the next assize. Should the magistrate decline to commit, or should the grand jury throw out the bill, the prisoner is never, as far as we know, tried upon the coroner's inquisition alone, but by the judge's permission the Crown tenders no evidence and he is set at liberty. Those who consider the expense and trouble that may be caused and the amount of pain that may be given to bereaved relatives by the holding of an unnecessary inquest will be in accord with us in our view that a medical man is the right person to decide whether an inquest should be held or not. Those who calculate the amount of medical evidence which it must have been necessary to explain to juries in the course of inquests held in a single year on nearly 35,000 dead bodies will agree with us that, again, for the actual holding of the inquiry the medical training is more likely to be of use to the coroner than the legal training. His duties had once a wide range; they still are of great importance but are practically limited to inquiries into the cause of death, the few additional functions that might be mentioned not demanding any considerable legal knowledge.

THE DISSEMINATION OF PLAGUE BY RATS AND FLEAS.

PLAGUE has now been established in Sydney for several months, and in an address delivered before the New South Wales Branch of the British Medical Association on April 7th Dr. Frank Tidswell of Sydney discussed a variety of interesting questions relating to the disease. In reference to rats, he said that there were many instances which showed that the presence of a plague rat was responsible for the illness in man. For example, a number of dead rats found one morning in a cotton factory at Bombay were removed by 20 coolies. Within the three following days about half of them fell sick with plague, whilst those in the store who had not touched the rats were not affected. Again, the coachman of an English family in Bombay found a dead rat in the stable and removed it. Three days later he fell sick with plague and died in a few hours, no other person in the same house being affected. Many persons, however, have caught plague without handling plague rats and many persons have handled plague rats without catching plague. To explain this difficulty Simond[1] has suggested that the infection is carried by the fleas natural to the rats. Perfectly healthy rats harbour very few fleas and are very expert in removing them, but fleas are abundant on sick rats. After death, as the body becomes cold, the fleas leave it. In this way Simond accounted for the fact that a plague rat may be handled with impunity some hours after death. If the fleas from the dead rat reach another rat or a human being, they may inoculate the bacilli they acquired by ingesting the blood of their former host. In some of Simond's experi-

[1] Propagation de la Peste, Annales de l'Institut Pasteur, 1898.

ments sick and healthy rats in separate cages were enclosed in a glass jar and it was found that when no fleas were present the healthy animals did not become infected.

"CHRISTIAN SCIENCE" AT HOME AND ABROAD.

WE mentioned recently that a powerful body of Oddfellows in America has decided to decline as members all persons associated with the semi-religious body known as "Christian Scientists" on account of the high rate of mortality shown to prevail in a fraternity which declines to avail itself of the services of medical men in cases of illness. This seems to show that provident associations of the nature of Oddfellows have some appreciation of the practical value of their medical attendants, however little respect or generosity they may exhibit towards them. It also suggests that in the United States, where "Christian Science" has more followers than with us, life insurance companies will do well to take it into account in their policies, while even in London this society eccentricity may some day have to be reckoned with by such associations. In England considerable attention was not long ago attracted to "Christian Science" by the inquiries resulting from two deaths among its members, particularly from that which followed the death of Mr. Harold Frederic, the novelist, but the deliberate neglect of medical aid is usually associated in our minds with the prosecution of parents belonging to the sect known as the "Peculiar People." A husband and wife, for example, belonging to this last-named body were brought before Mr. Justice Bigham at Chelmsford in June owing to the death of a child who had died in spite of their obedience to the mandate of the 14th verse of the 5th chapter of the Epistle of St. James, and they were each fined £5. But the "Christian Scientists," appreciating the fact that the indulgence extended to fanatics of the uneducated class would hardly be extended to them, are, we believe, careful not to interfere with the treatment of children, at all events in cases which they believe to be dangerous. The perusal of an article by Mr. H. T. Marshall in the June number of the *Johns Hopkins Hospital Bulletin* (Baltimore, U.S.A.) shows the wide spread of "Christian Science" in the country of its origin, and so explains the necessity of the attitude adopted towards it by the Oddfellows referred to above. The writer, without suggesting what discount he would allow for the inflation natural to such figures, informs us that it is claimed that in the United States a million people have received "Christian Science" treatment, while its enrolled members are put at about half a million, which shows that the danger has there reached a point at which it must be taken seriously. Mr. Marshall proceeds to give an interesting criticism of the "religious" and philosophical dogmas propounded by Mrs. Mary Baker G. Eddy, the aged founder of "Christian Science," from the point of view of its bearing on "Christian Science" treatment, or rather neglect, of the sick, while he ends by pointing out the dangers to human life which may result and to suggest precautions by the community. Foremost among these he naturally places insistance upon the proper notification of births, deaths, and contagious diseases, for which of course there exists ample machinery with us—machinery which is put in motion without difficulty when occasion occurs. With us, however, the danger is not a serious one as in the States owing to the craze not having "caught on" to the same extent, while, as we have seen, the fear of prosecution has a restraining effect in the case of children. Besides which a little reliance on the good sense of the average Englishman and Englishwoman and a glance at the congregation as it files into the "Christian Science" services in London alike tend to reassure us. Among the phrases quoted by Mr. Marshall from the writings of Mrs. Eddy occur the following: "The daily ablutions of an infant are no more natural or necessary than would be the process of taking a fish out of water every day and covering it with dirt in order to make it thrive more vigorously thereafter in its native element." "When there are fewer doctors and less thought is given to sanitary subjects there will be better constitutions and less disease." The bearings of these observations, as Mr. Bunsby would have said, lie in the application of them, and applying them to the smartly dressed ladies who sing hymns to the accompaniment of a grand piano and are soothed by solemn rigmarole in the comfortably furnished room in Bryanston-street, which is the London centre of their body, we should say without hesitation that they have their babies "tubbed" and send for the plumber or mason when the soil-pipe gets blocked as if no such nonsense as "Christian Science" had ever been concocted to confuse their "mortal minds." To them such precautions are as "natural and necessary" as the toilette with which they adorn bodies that, according to their teacher, only exist in their diseased imaginations. Beyond this they are precisely the followers best suited for enrolment in a congregation which should consist of those blest with the variety of "matter" known to the uninitiated as money, and they are precisely the order of human being most likely to suffer from ailments that may be dealt with by mental suggestion, while they are the least likely to suffer from those more serious troubles for which mental suggestion hardly affords a palliative. "Christian Scientists," as Mr. Marshall tells us, undertake to cure every form of disease by inducing the patient to disbelieve in its existence and acquire faith in their God. When they venture to deal with a child too young to understand their jargon they proceed to "heal" him or her by convincing the parents that there is nothing the matter. Methods such as these are to some extent harmless where, in fact, nothing is the matter, and "cures" of apparently serious disease wrought in cases where mental suggestion might naturally be expected to be effective probably account for much of the faith undoubtedly established in many minds by "Christian Science" preachers and "healers." At the same time, danger may at any time arise in individual cases; for instance, it is obvious that a woman might well have it suggested to her a few days after childbirth that she was perfectly able to arise from her bed and go about her ordinary duties and pleasures, and might obey the suggestion with results beyond the power of "Christian Science" to persuade into non-existence. Still, considerable protection is afforded to children in this country, however silly their mothers may be, by the fear of criminal proceedings, while children and women alike find some protection in the authority of the male members of the family. Men are scarce in the "Christian Science" congregation, and fathers and husbands are apt to impose limits beyond which nonsense may not be carried in their households, although a humorous story was recently circulated of a gentleman who consulted a "Christian Scientist" healer owing to an accident having left one of his legs shorter than the other. The healer was charming and highly successful, but she unfortunately went abroad during the progress of the cure, being able to conduct it equally well at a distance, and when last seen her patient was despairingly hunting for her lost address, unable to warn her without it that the injured limb was not only restored to its proper length, but was already longer than the other and still growing.

HORSE AMBULANCE IN LONDON.

AFTER the appearance of the article in the *Nineteenth Century* by the Hon. Dudley Leigh on Horse Ambulance for London, Mr. S. Osborn, F.R.C.S., chief surgeon of the Metropolitan Corps of the St. John Ambulance Brigade, wrote an article, a copy of which is now before us, in which is embodied a scheme for a complete ambulance

system for London, a scheme which in no way entrenches upon the very excellent work which is so ably undertaken by the above-mentioned Corps. It is a subject upon which he is well able to advise and not long ago he advocated its claim for urgent consideration before a specially convened meeting at the House of Commons. Whether an ambulance system for London should be under the control of the St. John Ambulance Association, the Metropolitan Asylums Board, or the London County Council was fully gone into by him, and he was able to show that it was only through the London County Council that the scheme could be efficiently carried out. He has been in communication for some time with this body with this object in view—viz., of grafting an ambulance system for London on to the Metropolitan Fire Brigade, by whom it could be easily horsed, housed, and supplied by alarm calls. The scheme has received the support of several members of the Council and one influential member has lately promised to take the matter in hand.

MEDICAL INSPECTION v. QUARANTINE IN THE UNITED STATES.

OLD customs die hard, even in a country deeply imbued with the spirit of originality and progress, but nevertheless the principle involved in the English method of medical inspection of vessels is making a substantial advance in the United States of America. The State of New Jersey has recently passed a Bill framed to prevent the introduction into that State of communicable diseases by maritime vessels or maritime traffic; and although the local boards of health are by it invested with full powers of detention it is not difficult to detect between the lines that medical inspection, isolation, and disinfection are the principles which will govern the action of the State and local authorities. It is by a system of "permits" that infected vessels will be allowed to approach the ports of New Jersey. All infected vessels are to be "examined, cleansed, ventilated, and purified," and even vessels which have passed any quarantine station on Long Island or in New York Bay and obtained a written permit to proceed to New Jersey ports are not allowed to land their passengers or merchandise until such permit has been deposited with the local authority and another permit obtained. With regard to the prevention of yellow fever it is laid down by the regulations based upon the Acts referred to that from May 1st to Nov. 1st no person shall leave or go on board any vessel arriving from any port south of Cape Henlopen until a proper permit has been issued; and in respect of infectious diseases generally permits shall only be granted if the vessel be found free from the "infection of yellow fever, cholera, typhus fever, bubonic plague, small-pox, diphtheria, scarlet fever, measles, or other diseases of a contagious, infectious, or pestilential nature." Furthermore, it is not permissible to land straw or bedding from any vessel from any foreign port or place until it has been disinfected by exposure in a closed chamber to steam at not less than 240° F. for 30 minutes. It will be seen that in certain aspects these regulations go considerably beyond those in force in this country, and this is more particularly the case with respect to diseases other than cholera, yellow fever, and plague. As to small-pox, for instance, it is laid down that when any person arriving at any of the New Jersey ports has been exposed to the infection of this disease that person shall either be vaccinated or subjected to detention and isolation for a period not exceeding the incubation of the disease in question. This is a fair alternative, but it seems to us that some provision is necessary to meet the case of those who have been recently vaccinated. The prevention of small-pox infection by maritime channels is a most useful precaution, but in order that consistency may be maintained it is necessary that all trains and travellers passing into this State from outside should be similarly dealt with.

THE CARE OF THE FEEBLE-MINDED.

FEEBLE-MINDED persons are to be found at all ages in every social class; their numbers are considerable, as shown by the reports of the Departmental Committee of the Education Board concerning children and a committee of the Charity Organisation Society. Many of these persons die young, but they survive in sufficient proportion to form an appreciable element among the adult population. The condition of these persons is in many ways a matter of importance to the public as well as to their friends. The work of caring for the feeble-minded and trying to benefit their condition is difficult and expensive, but it is an imperative duty and may yield unexpected benefits in valuable knowledge gained as to grades of brain power and scientific methods of increasing its growth while aiding mental development and removing causes of brain disorder by adapted training. Experience has shown the need of more accurate means of diagnosis and description of this class of case, and the many and varied conditions found among such cases, as also of studying the best methods of training, stimulating, and controlling deficient brains. Feeble-minded persons not certifiable as imbeciles should not be classed as or associated with idiots and lunatics; in fact, their intercourse with those of sound mental powers is desirable when practicable. The Commissioners in Lunacy are not responsible for those cases under public control as not being certifiable under the Lunacy Acts. The recent Education Act, 1899 (Defective and Epileptic Children), constitutes the Education Board the authority responsible for the inspection of the schools and special classes for defective children and for the distribution of the Parliamentary grant. We have received a copy of a memorial of the National Association for Promoting the Welfare of the Feeble-minded addressed to the President of the Local Government Board, asking that steps may be taken to institute an inquiry into the number and constitution of feeble-minded persons in receipt of Poor-law relief. Such an inquiry, conducted by competent medical men on lines settled beforehand, is very desirable. An example will be found in the report on 100,000 children examined by Dr. Francis Warner for a committee of the Charity Organisation Society and the British Medical Association. A recent conference of Poor-law guardians resolved that it is expedient that homes for the permanent protection of the feeble-minded should be multiplied throughout the country. We heartily recommend the proposal and would add that in every such home means should be taken also to promote the mental development of the inmates as well as to supply industrial occupations. The Local Government Board have in contemplation, it is stated, the preparation of a Bill providing for the better classification of inmates of workhouses and for the removal of imbeciles and epileptics; it is very desirable that in any such re-arrangements provision should be made for persons who are "feeble-minded" but not certifiable as imbeciles or lunatics.

STREET NUISANCES.

IN our issue of July 7th, p. 39, we remarked that the police in the neighbourhood of the Strand, at any rate, did not seem to be taking advantage of the powers conferred by the new by-laws of the London County Council. We are glad to see, however, that on July 6th two newsvendors were summoned before Mr. Plowden at Marylebone Police-court for shouting. Their names were Foster and Blackman, but Foster did not appear. Blackman, in defence, said that

he knew of the by-law, but thought that it only applied when a private person made a complaint. Mr. Plowden is reported as saying that he hoped the by-law would receive the fullest attention from the police and that they would not hesitate to use their powers whenever the opportunity offered. It was a most salutary by-law and the offence was complete if a person shouted to the annoyance of anybody. Blackman would be fined 10*s*. We hope that Mr. Plowden's remarks will be laid to heart by the police, and especially by those of the C and E Divisions. Mr. Plowden is to be congratulated upon his change of opinions as to noises. His sympathy with the "natural noises of animal life"[1] evidently does not include the noise made by the "runner." We are glad to see, too, that on the same day a window cleaner was charged at the Guildhall with standing on a sill "more than six feet from the ground." This was the first case under the new by-law of the London County Council. The defendant pleaded ignorance of the law and was mercifully let off.

THE ATHLETIC MASTER IN SCHOOLS.

A SHORT article in the *Contemporary Review* for July by Mr. H. J. Spenser, LL.D., is somewhat severe on the athletic master in schools and equally so on the headmasters who rush to engage the man who has achieved a reputation for mere physical prowess. Dr. Spencer bases his remarks very much on the legend of a noted "Blue," who on completing his century in a recent 'varsity match received five telegrams from as many headmasters offering him posts. He admits that in the majority of cases the headmaster tries to secure first the intellectual and teaching qualities which are the chief requisites in all schoolmasters, but is evidently of opinion that the temptation is strong and often yielded to to appoint a man for his popularity among boys, which is always best secured by the performance of physical feats. Dr. Spenser thinks not only that the athletic master is not necessarily a good teacher—rather the reverse; but he charges him generally with slackness in intellectual work or in promoting such work in others, with being untidy and unsystematic, with never condescending to small details in life, with no sense of obligation, and with being a tax on the forbearance and forethought of others. As he advances in life "his nights are usually devoted to cards, his clothes reek of tobacco, and the necessity for physical fitness is no longer cogent." He does not command the respect of his pupils, though on the field he may excite their admiration. He conveys to boys an utterly false view of the respective importance of work and play. There is much truth in this view of a certain type of athletic master. But we do not think the type is very common and we are not disposed to allow that even any serious minority of headmasters would be so unfaithful to their highest duty—that of selecting their subordinate—as to prefer men of mere physical fitness to those of intellectual and teaching aptitude. Undoubtedly the wise headmaster will have an eye to recreation and play, and of two men seeking work in his school, other things being equal, he will prefer the man who has some sense of the pleasure of physical life and activity—and rightly so. What boys in school need is an object lesson of the *mens sana in corpore sano*.

RUSSIA AND THE PROBLEM OF INTEMPERANCE.

RUSSIA, like all other progressive countries, is feeling the necessity of facing the question of intemperance arising from the existence among its simple-minded and good-natured peasantry of innumerable dram-shops where alcohol of the lowest quality and coarsest description is served out to the poor. The diseases due to alcohol, including the loss of moral self-control, abound, and the people were bartering themselves as slaves to the dram-seller. We commend to the notice of our readers and to that of all who are contemplating temperance legislation in our own country the letter on this subject of our Special Correspondent at the Paris Exhibition which appeared in our issue of July 7th, p. 53. The Russian Government in 1894 commenced to take the sale of alcohol into its own hands. Mere dram-shops in many provinces have been abolished and no indemnity whatsoever has been paid to the dram-shop keepers. Profits made by the State from the sale of alcohol have been given to temperance committees to establish taverns or places of social intercourse, restaurants, reading-rooms, libraries, concert halls, lecture halls, and the like. It will be curious to watch the effects of this measure on the future of Russia. One great good will be the better nourishment of the peasantry, who will spend their money on sound food. A great decrease in drunkenness and crime is already reported.

[1] THE LANCET, Jan. 28th, 1899, p. 276.

THE NEW ISLINGTON INFIRMARY, HIGHGATE HILL.

AN event of some significance and interest is to be honoured with the presence of Royalty on the 16th inst. at 4.30 P.M. Their Royal Highnesses the Duke and Duchess of York have kindly agreed to attend the ceremony of the opening of the Highgate Hill Infirmary connected with the parish of St. Mary, Islington. The ground is somewhat classic. The infirmary is built on the site of the old Small-pox Hospital where Marson did his immortal work in the observation of small-pox and of the effect on it of vaccination. But the new institution has an importance of its own. It is meant for the sick of this large parish—the most populous in the kingdom. Unfortunately pauper sickness seems to grow even faster than the population and to require for its treatment something very different from the old workhouse accommodation for paupers. We shall probably give our readers some details of the new institution next week. Meantime it is noteworthy that the Duke and Duchess of York should graciously show their concern for the welfare of the sick poor by their presence at the opening ceremony.

THE HOUSING PROBLEM IN RURAL DISTRICTS.

PART III. of the Housing of the Working Classes Act, 1890, has not up to the present been made much use of in rural districts, and an inquiry which has recently been held by the Essex County Council into an application on the part of the Malden Rural District Council to adopt this part of the Act has brought out some interesting points. The proposal is to erect a dozen cottages at Bradwell-on-Sea, at which place there are 121 occupied cottages. Of these cottages 22 have one bedroom, 77 two bedrooms, and 22 three bedrooms; but of the total 121 only 18 are regarded by the local surveyors as being in good condition. The district council are proposing to erect 12 cottages at a cost of £2500, including the land, and the surveyor estimates that at a rental of 3*s*. a week an annual loss of £50 would fall upon the rates. The county council commissioners think, however, that this figure is below the mark and that £60 more correctly represents the truth. There seemed, indeed, to be a feeling at the inquiry that under no circumstances could a higher rent than 3*s*. a week be paid for the cottages, while others thought a rental of 1*s*. 6*d*. should suffice. The commissioners point out that this question of rental is obviously the crux of the position and that under the present system the cottages attached to farms are frequently let considerably below their proper rental. In this

connexion they relate the evidence of one of their witnesses to the effect that a certain land-owner built for the use of a farmer two cottages at a cost of some £400; the farmer pays rent at 4 per cent. on the outlay in addition to doing repairs and paying rates and taxes. The annual expenditure of the farmer on these cottages is about £22—i.e., about 4*s.* 6*d.* per week for each cottage—but the rent which he charges his labourers is but 1*s.* per week—i.e., the men's wages are 3*s.* 6*d.* in excess of the nominal figures. The commissioners condemn this indirect method of payment and urge that if the farmers would increase the men's wages and charge the full rent some inducement might be offered to private building enterprise. The application of the district council is, it appears, likely to be granted and the experiment will be watched with interest by all those anxious to bring about a better state of affairs in some of our rural districts.

ROYAL COLLEGE OF SURGEONS OF ENGLAND: ANNUAL MEETING OF FELLOWS.

THE annual meeting of Fellows was summoned for Thursday, July 5th, at 5 P.M., but the election of members of Council delayed the entrance of the President, Sir William Mac Cormac, Bart., K.C.V.O., for about ten minutes. As, however, the number of Fellows required to form a quorum, 30, were not present, the President waited a quarter of an hour, and at the end of that time rose and declared that no meeting could take place as only 18 Fellows were present. He further pointed out that at the three previous meetings summoned no quorum had been obtained, so that the minutes of July, 1897, had not been yet confirmed. Until this year two meetings had been summoned yearly, but in 1899, in consequence of the repeated failures in getting a quorum, the Council had decided to call only one meeting each year. As it appeared that the Fellows were not sufficiently interested in these meetings to care to attend it might be possible that the Council would decide to do away with fixed meetings of Fellows and would themselves call a meeting when it appeared advisable, or on the requisition of a certain number of Fellows. We fear that the privilege of meetings of the Fellows, obtained after so much exertion, will shortly be withdrawn by the Council. The only agenda were three motions by Mr. R. B. Anderson.

Mr. H. Lockwood and Dr. A. H. Downes, Local Government Board inspectors, on July 10th opened an inquiry at St. Pancras Vestry Hall into the alleged irregularities which have recently taken place with regard to the certification and removal of lunatics.

SIR H. BLAKE, the Governor of Hong-Kong, in a telegram to Mr. Chamberlain received at the Colonial Office on July 9th, 1900, reports that 65 fresh cases of plague and 68 deaths occurred last week.

A CIVIL list pension of £50 has been granted to Mrs. Eliza Arlidge in consideration of the labours of her late husband, Dr. John Thomas Arlidge, in the cause of industrial hygiene, and of her straitened circumstances.

PRESENTATIONS TO MEDICAL MEN.—Mr. James C. M. Kinnear, M.B., C.M. Aberd., of Laurencekirk, Kincardineshire, on the occasion of his leaving the district, has been the recipient from his friends of a gold Albert chain and pendant.—Mr. T. Macdonald, M.B., C.M. Edin., has been presented with a centre-piece by the Highland Railway Ambulance Class, Inverness, in appreciation of his ambulance instructions.

THE UNIVERSAL EXHIBITION AT PARIS.

(FROM OUR SPECIAL CORRESPONDENT.)

New Nationalities.—Scientific, Medical, and Surgical Exhibits of Hungary, Italy, and Switzerland.

ONE of the practical services rendered by Universal Exhibitions is that of revealing to civilisation the advent of new nations in its midst. Take, for instance, the Universal Exhibitions from the one held in Hyde Park in 1851 down to that apotheosis of the Second Empire, the first Universal Exhibition held in the Champs de Mars in 1867—up to that date there was no Hungary. Now, on the contrary, excepting the Trocadéro which is devoted exclusively to colonial exhibits, the horizontal tricolour of Hungary may be seen proudly displayed in all directions. Though now a thousand years have elapsed since Arpád and his mystic seven chiefs led the Magyars to the borders of the Tisza and the Danube, Hungary as a modern and independent nationality does not date back further than to the Austro-Hungarian compromise of 1867. But what giant strides have been made since that date, the nation accomplishing in each succeeding decade the work of a century. For instance, and as indicating the spread of intellectuality, there were but nine printing firms at Budapest in 1848, and 10 years after the re-establishment of the Constitution of 1867 there were 51 printing establishments in the capital and 198 in the provinces. To-day there are 660 printing firms in Hungary, of which 147 are at Budapest. Whereas in 1868 only 50 per cent. of the children went to school, now the school attendance is equal to 80 per cent. of the juvenile population. These primary schools to-day cost 38,182,306 crowns per annum, instead of 7,520,246 crowns, as in 1868. In the same interval the State subventions to schools have increased from 1,500,000 crowns to 10,000,000 crowns. For secondary education the cost has increased from 6,741,000 to 20,000,000 crowns and the number of pupils from 36,569 to 56,441. The University at Budapest had 96 professors in 1867 and 295 professors in 1899. In many other directions similar progress is to be noted and the result is manifest by the large share that Hungary has taken in the present Universal Exhibition. Naturally medical education has had its place in this general progress and development, and of the many public works undertaken some relate to water-supply, drainage, hospitals, clinics, university buildings, and other services bearing on the preservation of the health of the nation. Not least among these are the improvements in agriculture, as they tend to increase the food-supply and the cost of the necessities of life. All this is made manifest at the exhibition not only by the exhibits themselves but by numerous explanatory pamphlets and a special and semi-historical catalogue of the Hungarian exhibits published by the Royal Hungarian Commissariat.

The Hungarian section in the department of the Exhibition devoted to letters, arts, and sciences is compact and well organised; it is easily accessible, its situation being in the western wing of the main building on the Champ de Mars. Care has been taken to show that every encouragement is given to the study of the sciences, and the various Hungarian institutes created for this purpose have their exhibits. Thus the Hungarian Institute for the Study of Forensic Medicine, which is under the direction of Dr. B. Kenyeres, exhibits stereoscopic photographs of wounds and other injuries that were the subject of legal investigations. The Anatomical Institute of Topogr has a very fine display of bones, while the Botanic Institute, managed by Professor Istvanffy, has models of plants artistically prepared and some plants preserved in alcohol. Professor Leschner's clinique for mental diseases sends a cephalograph for mapping the convolutions of the brain in relation to the walls of the skull. Then there are the exhibits of the schools of anatomy and notably that of the Budapest Faculty of Medicine—sections of the pelvic region, the circulatory system, &c. But what strikes the eye first is a large collection of models of human teeth. These are from four to five inches in length and are most carefully painted, so that the appearances in caries and various other diseases are readily perceived by reason of the exaggerated size of the models. The teeth are held up by a brass frame and in the lower part, the leg or stem of the frame, there is space for the

introduction of a circular piece of paper about an inch and a half in diameter. In this medallion are drawings or enlarged photographs of the specific microbe associated with the disease which the model tooth above illustrates. There is likewise a large assortment of apparatus used in the schools of chemistry. The first group of apparatus deals with the classic demonstrations, the second with the analysis of gases, and the third with scientific researches, the last-named including spectroscopic analyses. A neat little pamphlet with good illustrations is given by the attendants to those visitors who seem to take a serious interest in the subject, and it contains full explanations.

Another pamphlet gives many details concerning the ophthalmological clinic of the Hungarian Royal University at Budapest. This clinic was founded in 1801, but it was then part of the surgical teaching and it was only in 1867 that its present active and separate existence began and that a chair of ophthalmology was created. Yet as far back as 1770 Professor Joseph Plenk delivered a separate course of lectures on ophthalmology at the University of Nagyszombat and in 1780 an annual grant of 200 florins was given so that such lectures might be continued. In 1801 the first ophthalmological clinic was created. It consisted of two rooms and six beds. One of the earliest teachers of ophthalmology at Budapest, Le Febure, Baron of Saint-Ildefont, won so great a reputation that he was appointed in 1790 by Louis XVI. as surgeon to the Court of France. He was the author also of some well-known works on the subject. In 1813 a law was enacted by which no one was allowed to call himself an oculist unless he possessed the diploma of doctor and surgeon and had obtained from the professor of ophthalmology a first-class certificate which was only given after two examinations, the first on theory and practice and the second on operations. The growth of this branch of surgery may best be realised by the following comparative figures. There were at the ophthalmic clinic of Budapest 507 out-patients and 87 in-patients during the year 1850. In 1898 there were 8963 out-patients and 983 in-patients. The record of operations does not seem to go further back than the year 1875, when 291 ophthalmic operations were performed; these increased to 1171 in 1898. Professor William Schulek, assisted by a numerous staff, is now the director of this clinic, which is located in the central block of the Faculty of Medicine. A plan is given of these extensive premises. The ground floor is devoted to the out-patients, the consulting and operating rooms, &c., and on the upper floor there are beds for 60 patients, isolation rooms for contagious cases, baths, &c. Thus a detailed idea of the hospital arrangements and the facilities for medical and surgical education which exist in Hungary can be obtained without going any further than the Paris Exhibition. Then there are also large diagrams prepared by Professor A. Hogyes setting forth what has been accomplished by the Pasteur Institute of Budapest. These include coloured maps of Hungary which indicate the prevalence of rabies in the different counties for many years. From this it appears that 9023 persons were bitten and suspected of rabic infection during the period 1890 to 1897. The cases of rabies that ensued numbered 283, or 3·13 per cent. of the persons who had been bitten. Of these persons 7528 were inoculated, of whom 117, or 1·55 per cent., had rabies. Of the 1495 persons who were not inoculated 166, or 11·10 per cent., had rabies. Of the 7528 persons who were inoculated 53 could not receive the proper or complete treatment: 22 fell ill while undergoing the course of inoculations, and 31 within 15 days of the last inoculation. Consequently it is claimed that though 7528 persons were treated, those who were treated in time numbered 7475. Of this latter number only 64 suffered from rabies and therefore the proportion of those who were fully and properly treated and who nevertheless were victims of the rabic poison amounted to only 0·85 per cent., instead of 1·55 per cent. Behind these statistics of the Hungarian Pasteur Institute are a number of oil-paintings representing the coats of the stomach during and after injections of cold water, of warm water, of mineral waters, and of water containing solutions of different acids or Karlsbad and other salts. These were taken with the Leiter-Mikulicz apparatus by Dr. Charles Morelli. There are also a few surgical instruments and orthopædic apparatus, &c., and then we come to the exhibits of the Hungarian crafts as taught in the technical schools.

Facing the Hungarian section in this department is that of Italy, a nation which is at once so old in history and yet so young as a modern and united kingdom. Here the visitor is constantly greeted by the characteristic sounds of music from guitar and mandolin, while a large photograph of the ruins of the Roman Forum and reproductions of the best Italian Old Masters give local colour to the section. On a broad table are piles of very artistic and cheap photographs of Italy, its ruins and its best paintings, so that the visitor may take away with him a suitable souvenir. But there is very little in this section of special technical interest. There are a few artificial teeth, a gymnasium, and some rough, cheap school furniture. Among the latter there are a desk and seat, which can not only be raised or lowered according to the size of the pupil, but the board on which the feet are placed can also be raised several inches. Thus the children may be lifted up all to the same height and a small boy would be able to see even though a big boy might be in front of him. Also the raising of the feet from the floor may be of use in case of dampness or draughts and thus the feet can be kept dry and warm. Close by Dr. C. Ghillini has an orthopædic measuring apparatus. In front there is a large pane of glass which is ruled in squares of a centimetre each. Behind the glass there is an upright nickel staff with moveable arms attached. One arm is placed above the head of the patient and measures his height; two arms hold each side of the head, whilst other arms press against the side of the body and their points reach the ruled glass in front. With their aid a life-size drawing or tracing can be made on the glass indicating the deviations rapidly and accurately. That was about all of a technical description which I noticed in this section. The exhibits of the Italian universities and the reports, drawings, &c., of public works bearing on public health are to be found in the gallery inside the Italian Palace in the Avenue of Nations.

Crossing the main passage again the exhibits of Switzerland are next to those of Hungary. Here also we find appropriate music, for there is a room surrounded with musical boxes which in turn play well-known and popular melodies, and it is not necessary to remark that the musical box is essentially a Swiss speciality. In the next compartment is another but a much better and more elaborate collection of school furniture. The desks, being larger, suggest plenty of elbow-room, and they enable the visitor to realise that the Swiss in respect to primary education have set an example to all Europe. Then there is a delightful room, with a comfortable velvet settee in the centre, where the weary investigator finds a welcome resting-place while he contemplates the surrounding gorgeous array of coloured photographs of Swiss alpine scenery. Here, too, there is a big table where all that Switzerland gives us in the form of photographic souvenirs can be cheaply purchased. Having rested in this cool, shaded compartment, which to the exhausted visitor will appear as a real oasis, he will find outside enlarged photographs of the human fœtus compared with that of a chicken. They are hung on a partition that is in a somewhat obscure corner and away from the general traffic. There is also the fœtus of a snake as compared with that of a chicken and some very remarkable and minute skeletons of the human fœtus which have been preserved by Dr. Eternod of the Geneva University. Close at hand Professor Emile Young exhibits beautiful specimens to demonstrate the morphology of anthropodes and the visceral anatomy of vertebrates. Then Messrs. Reymond Frères of Geneva have a large assortment of dental chairs, furniture, &c., and apparatus for making plates, casts, and other things connected with artificial teeth. M. J. Heinz of Bâle has an extensive exhibit. The first compartment represents an operating room. The operating table is of nickel, in three moveable parts, and is drained by a central groove. The instrument case or cupboard is of glass and metal; one side of the door fits into a groove on the other side and at the bottom of the groove there is a soft material which on being pressed tightly prevents any ingress of dust. Some of the tables are of porcelain on metal legs, but the porcelain, though beautifully smooth and bright on the upper surface, is rough and unpolished underneath, so that dust can adhere just where it is least likely to be seen. There is an apparatus that looks like the back or head of an iron bedstead; its two legs are on wheels. This can be affixed to the ends of a bed that is not on castors. By a lever arrangement the bed can be raised an inch or two from the floor, and then it rests on the wheels of the apparatus and

can be rolled along without disturbing the patients. Thus if there is a hospital where none of the beds have castors or wheels a couple of these contrivances will in a moment supply temporary wheels to any bed which it is necessary to move. But perhaps the most interesting exhibit is a sectional drawing illustrating the ventilation of an operating-room. Here a large space under the floor is devoted to this purpose. First, there is an air filter, then a fan propellor. After these there are a compartment for heating the air, a pulverised spray for moistening, and, finally, the shaft for delivery into the operating-room. Thus the amount and the quality of the air supplied can be regulated and does not depend upon the accident of outside meteorological conditions. Facing these objects Messrs. Fr. Klingelfuss and Co. of Bâle show electric apparatus used in dental surgery and for the examination of the throat, the nose, and the ears, as well as for cauterising, &c.

Messrs. Knœbel and Laubscher, also of Bâle, exhibit a large assortment of surgical instruments manufactured in Switzerland and some bronze aluminium thread for sutures which has attracted some attention. Next to these are the very interesting exhibits of bandages, &c., manufactured by M. H. Russenberger, of Geneva. The absorbent or hydrophile cotton-wool shown here raises important technical questions that merit careful attention on the part of operating surgeons. As a rule, this cotton-wool is made with the cotton-waste purchased from the mills. If such cotton were properly purified there would be no harm in its employment, but it not unfrequently contains as much as 5 per cent. of chemical waste products from the mills. For surgical purposes the safest plan is to employ, as in this case, virgin cotton imported direct from America. Apart from its greater purity it is not injured by manipulation, therefore the fibres are stronger and of greater length. Also there is a larger volume for equal weight and it is more elastic. A band made of virgin cotton-wool does not break so readily and therefore it is easier to dress a wound. A band of cotton-wool of this description is shown. It is some four feet in length and one and a half inches wide. Suspended by one end from the top of the case or stall it has, at the other end, a weight of one kilogramme; yet unless violently shaken it will not break. But the chief object is a rapid and large absorption. Formerly this property was tested by placing a little of the wool on the surface of a basin of water and watching how long it would take before it became immersed. M. Russenberger proceeds in a more conclusive manner. He takes a test-tube and places some coloured liquid at the bottom and then fills up the tube with the cotton. The height to which the coloured liquid travels and its penetration into the centre of the cotton show in a more certain manner the absorbent qualities of the latter. By these means is effectively demonstrated the superiority of virgin cotton to that of the waste cotton from the mills. Another point is the use of boric acid in cotton-wool dressings. Lord Lister has said that there should be from 50 to 60 per cent. of acid, but cotton-wool thus impregnated cakes and is difficult to use. This is due to the fact that the wool is soaked in a hot solution of the acid. Consequently a great deal of wool sold only contains 10 per cent. of boric acid. In the present instance the wool is impregnated by sprinkling the acid in a powdered condition and then passing steam through. But even by these means a sufficient quantity cannot be mixed with the wool unless it be by a cumulative process. Therefore the operation is repeated several times, and thus at last a cotton-wool bandage is obtained that contains 50 per cent. of its own weight of boric acid. So, also, instead of using glycerine to fix antiseptic powders on bandages, this is likewise done by a process of pulverisation. Glycerine is not always a suitable substance and, for instance, it will turn airol red when exposed to light. Then there is the question of sterilising wool, bandages, &c. What is the good of this precaution if after sterilisation the substance treated is to be brought into contact with the atmosphere, touched by the hand, and packed up in parcels? The bandages, &c., here exhibited are not thus exposed, but are first packed in parchment and then sterilised by steam under pressure. After a time the steam is turned off and nothing is touched till all is quite dry. The articles are then put into a second envelope and must not be opened till they are required for use. So that the operator may be satisfied that the sterilisation has been complete a small tube containing the loose powder of phthallic acid is placed in the centre of the packet. If this powder, instead of being loose, is found adhering to the side of the tube this proves that it has been exposed to a heat of 129° centigrade. Such are some of the technicalities of the scientific preparation of bandages, &c., as exhibited in the Swiss section. Before leaving this section I should not omit to mention a portable operating table devised by Professor Auguste Reverdin of Geneva especially for the use of rural practitioners. It weighs in all 15 kilogrammes. The legs are of hollow cycle tubing and fit into each other in a telescopic manner. The whole can be neatly packed and carried like a portmanteau. There is also another non-portable table consisting of three hollow parts that can be filled with warm water to prevent the patient suffering from cold. After examining these technicalities the visitor will perhaps be pleased to terminate his inspection and to rest himself by contemplating large plaster-cast models of the Swiss Alps.

Paris, July 9th.

THE WAR IN SOUTH AFRICA.

FROM a military point of view there has not lately been much to record. The enemy's troops can scarcely be regarded now as really organised forces and the fighting has assumed the type of guerilla warfare. The telegrams from South Africa show that the campaign is slowly but surely drawing to a close. The Boers are evacuating strong positions to take up others, and that alert and clever tactician, De Wet, still manages to slip out of our grasp with his troops. It is singular how seldom we seem to take any large number of Boers as prisoners or capture their guns. What has become of their artillery?

There is a widespread prevalence of enteric fever among our troops in South Africa. This fever is the scourge of all modern warfare and we are afraid it will continue to be so. Although typhoid fever is classified as a preventable disease it is uncommonly hard to prevent it under all the conditions of war. The more rapidly a campaign can be conducted the better for everyone, but the harder it is on all sanitary, transport, and supply departments. The mortality statistics of enteric fever in South Africa compare favourably on the whole with those of other wars or of India. A reference, too, to the statistics of the London Fever Hospital and to those of the Metropolitan Asylums Board will show that the percentage mortality at the army ages of soldiers is in excess of the average for all ages and this has, of course, to be borne in mind.

If the campaign in South Africa has from a purely military standpoint reached a dull stage of late as compared with the earlier and more exciting periods of its history this cannot be said of its medical aspects, for we are living in the clash of contentions and contradictory statements. About one thing, however, there can be no doubt, and that is that while there is an overwhelming amount of enteric fever at certain places the disease seems to be more or less prevalent everywhere in South Africa at the present time. It would be comparatively easy to deal with it if it were only known beforehand where the incidence of sudden and severe outbreaks was likely to occur, which is just what cannot be done. South Africa as a whole is of some 442,000 square miles in extent, and although the theatre of war has not this area it nevertheless occupies a very large one and the available means of communication are very limited for the great number of troops in the field. There was not long ago an epidemic of typhoid fever at Maidstone and to provide the requisite number of suitable hospitals and trained nurses for it was by no means an easy task, notwithstanding that Maidstone is not far from London by rail. How much more difficult must it be to do so in the case of epidemic outbreaks on a large scale in Africa, for they must be trained nurses to be of any good in the case of typhoid fever patients; untrained attendants, however well disposed, would be more likely to prove an encumbrance than otherwise. Where are all these trained nurses to be had? However, a commission will soon be constituted and sent out to South Africa to inquire into the sickness and medical arrangements there. We can quite appreciate the force of Lord Roberts's request that some of its members should be persons of strong common sense.

The last issued official return of the War Office shows the total casualties since the beginning of the war up to the end of last week, but exclusive of sick and wounded men in

British hospitals in South Africa, to be 30,693. The list is made up as follows:—

—	Officers.	Non-commissioned officers and men.
Killed in action	255	2,411
Died from wounds	70	625
Missing and prisoners (excluding those who have been recovered)	59	1,927
Prisoners died in captivity	1	84
Died from disease	137	4,398
Accidental deaths	—	68
Sent home as invalids	916	19,742
Total	1438	29,255

(FROM OUR SPECIAL CORRESPONDENT LATELY AT THE BASE.)

Bloemfontein and enteric fever are synonymous at present, though I am glad to say we are gradually getting the best of it; it has, however, been a hard fight and many have gone down in the contest. When I tell you that besides the three big general hospitals, Nos. 8, 9, and 10, which have been accommodating any number between 1000 and 1500, there are the Langman, the Irish, the Portman, the Radzali, and the Volkes Hospitals, all more or less full up, it will give your readers some slight idea of the work of the medical staff during this campaign. Few people will realise unless it is explained to them, that each of our big general hospitals is treating at present nearly double the number of patients that can be accommodated at University Hospital or St. Mary's Hospital, and when the thousand and one other duties that are absolutely necessary are taken into account, such as rations, supplies, conservancy, and the internal economy of the various units of the Royal Army Medical Corps, St. John Ambulance, and the Cape Medical Staff Corps, to say nothing of the vast army of regimental orderlies who are doing duty in place of our own men who are ill or invalided, I think it will be acknowledged that life out here at present is not all rose coloured. The climate is excellent—cold and frosty in the mornings and evenings and comfortably warm during the day; and were everything else equal it ought to be an ideal spot for invalids and convalescents.

When I left Cape Town the only general hospitals left were Nos. 1 and 5, all the others having gone up country, and by the time you get this I hope our own may be also at Pretoria or Johannesburg. Of course, the number of surgical cases are now few and far between, but I expect the engagements that have beeen taking place round Pretoria will mean that we shall soon be having some more sent down. The great convalescent camps that exist here, at Norvals Pont, and at Springfontein are a great boon and enable men who, though seedy, are by no means so ill as to require to be sent to England, to pick up and rejoin after a brief stay. Two more new hospital trains, admirably fitted and equipped, have been added to the existing number and are performing excellent work, and besides these we have most comfortable saloon trains running at brief intervals for convalescent patients who do not require lying-down accommodation or special diet and nursing. Our number of nursing sisters is being augmented daily, and I cannot say too much for the way these ladies have been working under circumstances which, owing to the exigencies of warfare, must have been often disheartening in the extreme. Everyone speaks well of their devoted work, and no praise is too much from us who see them day after day and night after night going on steadily and earnestly in their labour of unselfish devotion to their duties.

As I predicted in my earlier letters disease has claimed far more victims than the Mauser bullets, and anyone who at the commencement of the war would have predicted that our sick would reach a total of over 10,000 would have been a true prophet, though he might at that stage of the proceedings have been discredited. As regards the enteric fever it is very difficult to say at present to what source it can be traced. It is undoubtedly endemic in Bloemfontein, which is not to be wondered at when one comes to look a little into the sanitary arrangements of the town, which are practically *nil*. The majority of our cases were transferred from the various field and stationary hospitals which seem to have brought them from the Modder and Paardeberg, where the disease was contracted during the stay of the troops in these localities. One of the worst features about this disease is that it absolutely unfits men for further duty for at least three months—which, of course, means that they must be sent home, the voyage being one of the main factors in the convalescent treatment which all these cases require. At present the line is blocked between this place and Kroonstad owing to the Boers having cut the communication, and several of the hospital trains and members of the staffs of the hospitals which are up at the front are temporarily detained here. Luckily there is plenty of excellent accommodation in the way of hospitals at both Pretoria and Johannesburg so that no inconvenience will be felt, and long ere you receive this the line will have been cleared. I shall not enter into any statistics regarding the enteric fever as you will doubtless have more extended reports than I have time to give you, but I can confidently state that the mortality does not exceed the average—in fact, when one comes to analyse the returns they certainly furnish a subject for congratulation as far as the mortality is concerned.

Bloemfontein, June 16th.

THE IMPERIAL YEOMANRY HOSPITAL.

BY ALFRED D. FRIPP, M.S., F.R.C.S.

We have had a terribly sad week since last I wrote to you owing to the death of two young officers, each of whom, though their ways lay far apart, had endeared themselves to many members of our camp. Early in the week came the bare statement, and even yet we have heard no details at all, of the death in action of Lady Chesham's son. Only a few weeks ago he passed through here on his way to the front for the first and last time and everybody who met him was won by his cheery good spirits and good heart. On the day we heard the sad news our chaplain held a memorial service, for a gloom was cast over the whole of our camp. But it was only the forerunner of another event the sadness of which came even more home to the staff and patients of this hospital, for in the death last Friday, June 15th, of Dr. R. T. Fitz-Hugh everybody here felt that they had lost a friend whose value they had had the opportunity of realising. He was one of the juniors among our medical officers, but his practice here among the patients had cemented the high opinions which had been formed at Guy's Hospital by his teachers no less than by his contemporaries from his earliest student days and which had been fortified by the high degrees he had taken at the London University. He was popular alike with his colleagues, with the nursing sisters, with the non-commissioned officers and orderlies, and with the patients. His career gave every promise of his attaining a very high place in his profession; but apart from his value to this hospital in his professional capacity he had many characteristics which had endeared him to those who knew him. He was a thorough sportsman, a prominent member of our cricket eleven, though perhaps best of all at Association football, in both of which sports he used to play for Guy's Hospital when he was a student. He was a man with a keen sense of humour and quite the most popular performer at the smoking concerts which do so much to keep up the spirits of our camp. One song of his in particular was so popular that however much he tried to satisfy the audience with others they never would let him leave the piano until he had given them their favourite Poor old "Fitz," as we always called him, will not quickly be forgotten by his friends. There was an enormous congregation at his funeral service, the first part of which was held in the church. All ranks of the hospital were largely represented and formed into a long procession to follow him to the cemetery about a quarter of a mile away. The coffin was carried by orderlies, and four of his fellow Guy's men acted as pall-bearers.

On the day that he died the entire staff was kept busy by the arrival of two trains full of sick and wounded, the first day on which we have ever experienced such a heavy "take in." The first train load was the earliest out of Mafeking. Poor fellows, they are thin! But you will hardly need me to tell you this, nor that they are plucky. I was much struck by the coolness displayed by one of the officers. He was shot

through the leg, and a few yards further on through the chest. That brought him down, but the Boers put two more bullets into him at forty yards' range while he was on the ground. He thought the best thing to do to save further damage was to sham dead. They came and looted his pockets and he found it very difficult to maintain the sham. Later he was taken into the Boer laager as one of the wounded, and the first thing he did was to protest against having been looted before he was dead! But this he did so eloquently that the Boer in command had his watch searched for and returned to him. Professor J. Chiene of Edinburgh came down with this train. The second train arrived from Wynberg and Senekal, and out of 96 occupants there were no fewer than 50 "stretcher" cases—i.e., patients so gravely ill that they had to be carried from the train to their beds. Many of the wounded from the latter neighbourhood presented a feature which was entirely novel to our experience in that they were burned more or less severely. It seems that our troops had had to advance through veldt fires. A few of them were burned in running through; others only got their burns when they fell to the ground wounded, but from the accounts of the survivors I fear that there must have been others again still less fortunate who, when they fell to the ground, were unable to move and were burnt to death. No. 3 hospital train, which brought the latter load, left again immediately for Mafeking, and Colonel Sloggett went up in it with the intention of bringing down all the rest of the sick and wounded from that place. Still lying there is a cousin of mine, Major Mullins, of the Imperial Light Horse, who, after being wounded through the shoulder at Elandslaagte early in the war and then being locked up in Ladysmith throughout the siege and having enteric fever in Intombi camp, formed one of the relief force and had the bad luck to get wounded in the back just before they got into Mafeking. Professor Chiene, who saw him in Mafeking, tells me that both legs were completely paralysed at first, but that now there is so much improvement as to warrant the hope that he may regain the use of both. I sincerely hope that Colonel Sloggett will find him and all the others still left in Mafeking—some 50 we were told—well enough to travel, in which case we shall have the pleasure of putting the splendid resources of this hospital at the service of all those who were laid up in Mafeking or wounded in its relief.

The blowing up of the railway north of Kroonstad has not really affected our material interests here at all, for most fortunately all three hospital trains (for a third one has just been improvised out of the ordinary saloon carriages with a kitchen truck in the middle) were south of that part at the time, and therefore their regular running has not been interfered with.

Professor Chiene was originally coming out as senior surgeon to the 100-bed Scottish Hospital recently established at Norval's Pont, but the day before he left home he was appointed a consulting surgeon to the Forces by the War Office in one of the vacancies created by the home-going of Sir William Mac Cormac and Mr. Treves. He stopped the whole day with us and I took him all round the hospital. He made a most minute inspection of everything and carried away, for the benefit of the Scottish Hospital to which he was going, a sample of any little device that struck him as novel. He was much fascinated, for instance, by the way buckets are improvised here out of empty oil cans. He and the two other medical men and the two sisters on the Mafeking train lunched and dined with us and he left again late at night, having expressed himself extremely pleased with everything he saw. The operating theatre, the laundry, the disinfectant house, and the latrines were the parts he admired most of all.

We have had to turn one of the smallest huts into a sick room for the sisters. They are so closely packed in the ordinary sisters' sleeping huts that it is extremely inconvenient there when one of them is ill. I am glad to say that there are no serious cases amongst them, but their work is very heavy now, and their sick room is in perpetual request for slight cases. Greenfield and Parker, the other two medical men who I told you had enteric fever, are both doing well. Three others of our medical staff have had to be admitted to the officers' ward during the past week, but we do not think that any of them have enteric fever. Exactly a quarter of the orderlies we brought with us are now sick in hospital. In spite of this attenuation of our staff we are still expanding our accommodation and have now 800 beds, although nearly a hundred of them are not occupied, 50 being reserved for our expected load from Mafeking, and from 30 to 40 we always keep vacant, as I have told you before, for chance arrivals.

Deelfontein, June 18th.

IMPERIAL YEOMANRY BRANCH HOSPITAL.

(FROM A CORRESPONDENT.)

Before Mr. Burdett-Coutts's letter had appeared in the *Times* Lord Roberts telegraphed to London from Pretoria that he would like another Yeomanry hospital sent out if possible.

The committee, with their usual promptness, despatched four days after the receipt of the telegram the nucleus of the medical and nursing staff of a new hospital destined for Pretoria or Johannesburg or any other spot decided on by Lord Roberts. The remainder of the staff were under orders to leave Southampton a week later. The first departures consisted of F. M. Sandwith, M.D., F.R.C.P., who is taking a summer holiday from Cairo; W. Langdon Brown, M.B., assistant physician to the Metropolitan Hospital and casualty physician to St. Bartholomew's Hospital; H. Williamson, M.B., B.C., late house surgeon at St. Bartholomew's Hospital; and S. F. Crowther Smith, M.B., late house physician at St. Bartholomew's Hospital. The matron is Miss Nisbet of the East Dulwich Infirmary, who earned her first laurels at the Chalcis Hospital during the late Greek war. She left in charge of 11 nurses of the Royal Army Nursing Reserve, and the staff were accompanied by 81 orderlies, many of whom have had previous nursing experience. Most of the equipment will be provided on arrival at the Cape. The party is also accompanied by Colonel Lucas and Colonel Deane who are proceeding to South Africa to report upon the various Yeomanry units now serving at the war. The Yeomen already number over 11,000.

JENNER INSTITUTE OF PREVENTIVE MEDICINE.

THE annual general meeting of the Jenner Institute of Preventive Medicine was held at Chelsea on June 29th, Lord LISTER, the President, being in the chair. Amongst those present were Sir Joseph Fayrer, Surgeon-General Hooper, Professor Greenfield, Professor W. G. R. Simpson, Dr. McCrury, Dr. Bridgwater, Colonel Addison, and Mr. S. G. Shattock.

The governing body reported that during the year the work of the Institute had continued to afford valuable results. The transference of Lord Iveagh's gift for the promotion of the objects for which the Institute was founded had been effected and the governing body which would in future control the affairs of the Institute had been constituted. Reference was made to the loss the Institute had sustained through the death of His Grace the Duke of Westminster.—The report of the TREASURER (Sir Henry Roscoe) was read and adopted.

The report of the DIRECTOR (Dr. Allan Macfadyen) stated that during the year the Institute's work had continued to progress. The following paragraphs are taken from the report: "The fitting up of the Chelsea building, which has occupied a good deal of my time during the past three years, is now completed with the exception of the museum. The foundations and footings on the vacant portion of the building site have been laid down, and this will facilitate building operations in the event of its being decided to proceed with the erection of the new wing. Amongst new features added during the year may be mentioned (1) a physiological room, (2) a room for incubating purposes, (3) a laundry, (4) a workshop, and (5) a cold-storage-room.

"Mr. Briggs has presented to the Institute a Hansen apparatus for yeast-culture and considerable additions have been made to the library. The first laboratory meeting of the Pathological Society of London was held at the Institute. During the year I visited the laboratories of Professors Behring and Ehrlich and those of Meister, Lucius and Brüning at Höchst. A second volume of the Institute's Transactions has been published. The volume contains 19 contributions and includes a paper

by Professor Ehrlich. Professor Welch of the Johns Hopkins University writes: 'I congratulate you upon the excellence of the scientific work recorded. Every paper is a genuine contribution of real value. The Institute is a splendid success and all English-speaking physicians have reason to be proud of it.'

"Three papers have been communicated to the Royal Society upon the influence of the temperature of liquid air and hydrogen upon bacterial life. The experiments were conducted with the kind coöperation of Professor Dewar and a further series is contemplated upon life at low temperatures. In conjunction with Dr. Morris and Dr. Rowland a paper has been submitted to the Royal Society on Expressed Yeast-cell Plasma (Buchner's 'Zymase'), a subject of considerable biological interest. The research has been the means of giving us a new method for triturating organisms. Systematic investigations are being carried out in the bacteriological department upon enteric fever, tuberculosis, and the etiology of cancer, with the coöperation of Dr. R. T. Hewlett and Dr. Rowland. Various investigations have been published during the year by Dr. Hewlett and other members of the staff. It is proposed to set on foot a systematic inquiry into the nature and origin of food poisons.

"A number of workers have utilised the laboratories for purposes of research during the year. Special investigations were carried out for public authorities during the year—e.g., upon tubercle in milk, glanders, anthrax, &c. The illustrations for the Transactions were prepared by Mr. J. E. Barnard in the photographic department of the Institute. Mr. A. Harden, chemist to the Institute, reports that he is continuing his investigations upon the chemical products of pathogenic and other micro-organisms. Dr. G. Harris Morris, lecturer on technical mycology, states that a number of students have utilised the facilities of the Hansen Laboratory, whilst researches upon yeasts, diastases, zymase, and other subjects of technical interest have been prosecuted. Dr. George Dean, in his report of the work of the antitoxin department, states: 'In connexion with diphtheria antitoxin many experiments have been made with the view of ascertaining the best conditions for obtaining powerful toxins and antitoxins and in testing the results claimed for the methods of other workers. The improvement in the strength of the toxins and in the method of immunising the animals has resulted in a higher average of antitoxic value being reached, so that the increased demand for this antitoxin has been successfully met. Several races of streptococcus pyogenes have been used in immunising horses with the view of obtaining a polyvalent serum. The War Office and several of the consulting surgeons who have gone to South Africa have been supplied with the tetanus and other antitoxins. Researches dealing with problems of immunity are in progress and papers have been published from the department upon the diphtheria bacillus and a new pathogenic streptothrix.'"

THE THIRTEENTH INTERNATIONAL MEDICAL CONGRESS, PARIS, AUGUST, 1900.

THE following arrangements have been made for British members who wish to attend the Congress to be held at Paris from August 2nd to August 9th. The South-Eastern and the Chatham and Dover Railway Company will issue tickets to members and their wives, but not to their families, on presentation of their cards of membership at the reduced rate for return tickets of 58*s.* 4*d.* first-class and 37*s.* 6*d.* second-class *viâ* Dover and Calais or Folkestone and Boulogne, available for 14 days; by the 2.45 P.M. service from Charing-cross or Cannon-street *viâ* Folkestone and Boulogne, and by the 9 P.M. service from Charing-cross, Victoria, Cannon-street, and Holborn *viâ* Dover and Calais. Each ticket will entitle the holder to a free allowance of 56 lb. of luggage and will be available to return from the Gare du Nord at Paris by the 3.30 P.M. or the 9 P.M. services. Those who wish to return by the 9 A.M. service *viâ* Calais and Dover, or the 10.30 A.M. service *viâ* Boulogne, may do so on payment of 7*s.* 1*d.* first-class and 3*s.* 9*d.* second-class on board the steamers. The special tickets will be issued every day from July 21st to August 10th and will thus be available for those who wish to attend the Congress of Medical Ethics, the Congress of the Medical Press, the General Medical Congress, and the Congress of Hygiene.

The London, Brighton, and South Coast Railway Company will issue on application to the Continental Traffic Manager, London Bridge Terminus, a day or two in advance of departure, 14-day excursion tickets available from London or any station on the Brighton Railway to Paris at 39*s.* 3*d.* first-class or 30*s.* 3*d.* second-class to members of the Congress. The tickets can be made available for the day service and the availability can be extended to, say, 25 days if desired. These tickets allow a break of journey at Brighton or Lewes, Newhaven, Dieppe, and Rouen, both in going and in returning. Members who apply for these tickets are required to give proof of their membership and should make their cheques payable to the London, Brighton, and South Coast Railway Company, addressed to Mr. T. N. Wylie, the Continental Traffic Manager at the London Bridge Terminus.

The London and North-Western Railway Company state that parties of 30 or more passengers travelling to Paris this season from a station outside the radius of 20 miles from London (the party travelling together on the outward journey, but individually if desired on the homeward journey) will be charged the single fare and a quarter for the double journey from the North of England to London and back, *plus* the 14 days' excursion fares from London to Paris in force by the different routes beyond London. The tickets will be available for 16 days—i.e., 14 days between London and Paris and two days extra between London and the provincial station.

The Midland Railway Company are prepared to make a similar concession for parties of 30 and upwards travelling together from stations over 20 miles from London.

The International Sleeping Car Company, 14, Cockspur-street, Charing-cross, London, S.W., are the agents for the Trocadéro Hotels in Paris. These hotels are situated on the Quai de Passy and the Boulevard Delessert, immediately adjoining the Trocadéro section of the Exhibition. They consist of four separate blocks, and being constructed solely of stone are so designed that when the Exhibition is over they may be used as flats. The position they occupy is in many ways unique, and their immediate proximity to the Exhibition grounds renders them most convenient for visitors to the Exhibition, and this, on account of the excessive charges made by the Parisian "cochers" for cabs, is a consideration. The hotels are pleasantly situated, two of the four blocks being on a level with the Quai de Passy, whilst the other two are on a level with the Boulevard Delessert, separated from the lower ones by a large garden and a series of terraces with fountains. The second floor of the two upper buildings is about on a level with the fourth floor of the two lower ones, so that the view over the Seine and over the whole of the Exhibition is the same from every part of the hotels. At present visitors are able to obtain bedrooms with one bed at from nine to 16 francs and double bedrooms at from 15 to 28 francs per day, including lights and attendance. The tariff for visitors *en pension* varies between 16 and 23 francs per head a day according to the floor and the aspect of the room occupied. These prices include bedroom, electric light, attendance, breakfast, luncheon, and dinner with wine, or beer, or mineral water, or milk. Early application, however, is now necessary and should be made direct to the Manager of the Sleeping Car Company, 14, Cockspur-street, S.W.

At Paris special rooms will be set apart on and after Monday, July 30th, for the use of the national committees of each country which may be used as a rendezvous for each nationality. These rooms will be in the buildings of the Faculté de Médecine. A postal telegraph office will also be opened at the Faculté de Médecine where members will find their letters and telegrams if they are addressed as under:—"Dr. ————, Member of the Thirteenth International Congress of Medicine, Paris."

STATE OF THE MORTUARIES AT DEVONPORT.—At an inquest held at Devonport on July 2nd the coroner described the Pottery Quay mortuary as a scandal and considered it his duty as coroner of Devonport to point out the disgraceful condition of things with regard to the mortuaries of the town. He added that the feelings of those who had had relatives placed there must have been very harrowing.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

THE following were among the principal amounts received at the Mansion House in aid of this Fund up to noon on Wednesday last, when the total was over £40,000:—

	£	s.	d.
Temple Church	115	0	0
St. Mary's, Bryanstone-square	269	0	0
St. Paul's, Avenue-road	121	0	0
St. Luke's, Rutford-place	115	0	0
Holy Trinity, Knightsbridge	126	0	0
St. James's, Clapham-park	100	0	0
Christ Church, Gipsy-hill (morning collection)	105	0	0
St. Peter's, Brockley	116	0	0
St. Marylebone Parish Church and Chapel	203	0	0
St. George's, Hanover-square, and St. Mary's, Bourdon-street	156	0	0
St. John's Presbyterian Church, Forest Hill	107	0	0
St. James's, Paddington, Parish Church	130	0	0
St. Martin-in-the Fields	212	0	0
St. Peter's, Vere-street	422	0	0
Christ Church, Wimbledon	100	0	0
Per Canon Haygarth, total	206	0	0
Trustees of the late Wm. Rankine	100	0	0
Miss Emily Old	25	0	0
Mr. Charles Edwin Layton	21	0	0
Mrs. Charles Edwin Layton	21	0	0
St. Mary's Old Church, Stoke Newington	30	0	0
"In Memoriam," Crosby Lockwood	20	0	0
Bromley (Kent) Presbyterian Church	20	0	0
Brixton Congregational Church	59	0	0
St. James's, Camberwell	30	0	0
St. James's, Garlickhithe	28	0	0
St. Matthew's, Brixton	51	0	0
Vintners' Company	21	0	0
St. Ann's, Wandsworth	46	0	0
Belgrave Church, Halkin-street	22	0	0
Finchley Parish Church	27	0	0
St. Paul's, Upper Holloway	26	0	0
Harrow Weald Parish Church	26	0	0
Orange-street Congregational Church	22	0	0
Gower-street Baptist Church	20	0	0
Putney Parish Church	40	0	0
St. Mary's, Cuddington, Parish Church	35	0	0
St. Mary's, Shortlands, Kent	51	0	0
St. Paul's, Great Portland-street	66	0	0
St. Philip's, Regent-street	27	0	0
St. Anne's, Highgate-rise	22	0	0
St. Jude's, Upper Chelsea	27	0	0
Brondesbury Baptist Chapel	21	0	0
High Beech Church	26	0	0
St. Peter's, Clapham	26	0	0
St. John the Evangelist, Westminster	80	0	0
St. Peter's, Ealing	27	0	0
St. Mary's, Monken Hadley	34	0	0
Christ Church, Chislehurst	43	0	0
Christ Church, Newgate-street	47	9	0
The Collegiate Church of St. Saviour, Southwark	29	0	0
St. Luke's, Hornsey	24	0	0
Northwood (Middlesex) Parish Church	25	0	0
Christ Church, Southwark	46	0	0
Metropolitan Tabernacle	43	0	0
West Wickham Church and Mission	43	0	0
St. Mary Boltons	65	0	0
St. Augustine's, Queen's-gate	72	0	0
West Wickham Churches	43	0	0
Great Stanmore Parish Church	33	0	0
Merton Parish Church	26	0	0
Church of the Annunciation, Chislehurst	77	0	0
St. Stephen's, Hampstead	22	0	0
St. James's, Clapton	26	0	0
Keston, Kent, Parish Church	27	0	0
Leytonstone Congregational Church	25	0	0
St. Paul's, Wimbledon-park	43	0	0
Nutley-lane Church, Reigate	22	0	0
St. John's, Redhill	42	0	0
Beckenham Parish Church	65	0	0
Bromley Parish Church, Kent	66	0	0
Crouch-hill Presbyterian Church	41	0	0
Roupell Park Wesleyan Church	22	0	0
Central Hill Baptist Church, Upper Norwood	87	0	0
Chapel Royal, St. James's Palace	70	0	0
St. Andrew's, Leytonstone	61	0	0
St. Mary's, Hornsey Rise	27	0	0
Christ Church, Brondesbury	38	0	0
Clapton Park Congregational Church	25	0	0
St. Gabriel's, Warwick-square	54	0	0
Christ Church, Hampstead	74	0	0
Guards' Chapel, Wellington Barracks	48	0	0
St. Barnabas, Dulwich	20	0	0
St. Saviour's, Denmark-park	26	0	0
Hampstead Parish Church	39	0	0
St. John the Baptist, Pinner	24	0	0
St. Mary's, Aldermanbury	22	0	0
St. Luke's, West Norwood	49	0	0
Munster-park Wesleyan Church, Fulham	20	0	0
Emmanuel Church, Wimbledon	65	0	0
Chiswick Parish Church	30	0	0
Ferme Park Baptist Church	28	0	0
St. Anselm's, Davies-street, W.	20	0	0
All Saints', Norfolk-square	36	0	0
St. Luke's (Parish Church), Chelsea	43	0	0
St. Marylebone Presbyterian Church	71	0	0
Upper Clapton Congregational Church	20	0	0
St. John's, Upper Norwood	34	0	0
Brixton-hill Wesleyan Church	24	0	0
Streatham Wesleyan Church	34	0	0
Dartford Churches	27	0	0
Christ Church, Woburn-square	25	0	0
St. James-the-Less, Westminster	36	0	0
Dulwich College Chapel	50	0	0
St. Mary the Virgin (Parish Church), Hayes, Kent	24	0	0
Hammersmith (St. Paul's) Parish Church	26	0	0
Trinity Presbyterian Church, Wimbledon	21	0	0
St. John the Evangelist, Putney	59	0	0
Bromley (Middlesex) Parish Church	23	0	0
Trent Church, Enfield	21	0	0
Upper Holloway Baptist Chapel	21	0	0
St. Mary Magdalene, Peckham	35	0	0
St. Mary's (New) Parish Church, Stoke Newington	63	0	0
St. John's, Deptford	65	0	0
Barry-road Wesleyan Church	20	0	0
Victoria Park Christian Evidence Association	62	0	0
Lewisham High-road Congregational Church	45	0	0
St. Katharine Royal Collegiate Chapel	23	0	0
Dutch Church, Austin Friars	66	0	0
St. George's Chapel, Albemarle-street	57	0	0
St. George's Garrison Church, Woolwich	20	0	0
St. Laurance's, Catford	28	0	0
St. Stephen's, Avenue-road	27	0	0
St. Mary's, Balham	41	0	0
Mission of the Holy Redeemer, Stoke Newington	23	0	0
St. Mary's Hospital Chapel, Ilford	30	0	0
St. James's, Holloway	60	0	0
Brixton Unitarian Church	29	0	0
Mitcham Parish Church	25	0	0
St. Peter's, Highgate-hill	25	0	0
Rectory-place Congregational Church, Woolwich	29	0	0
Kingswood, Surrey, Parish Church	28	0	0
Wanstead Parish Church and Christ Church	50	0	0
St. John's Mission Church, Chislehurst	30	0	0
St. Peter's, Dulwich-common	44	0	0
All Saints, Margaret-street	48	0	0
Camberwell Parish Church	25	0	0
West Hackney Parish Church	25	0	0
Holy Trinity with All Saints, Eltham	40	0	0
Hornsey Parish Church	25	0	0
Gordon-square Catholic Apostolic Church	27	0	0
St. Andrew's, Whitehall-park	25	0	0
St. Paul's, Upper Norwood	66	0	0
Hampstead Parish Church	49	0	0
Highgate Presbyterian Church	38	0	0
St. Paul's, Forest-hill	40	0	0
Duke of York's Royal Military School Chapel, Chelsea	32	0	0
St. German's, Blackheath	37	0	0
St. James's, Muswell-hill	45	0	0
St. John's, Notting-hill	48	0	0
St. Mark's, Bromley, Kent	34	0	0
Christ Church, Hornsey	54	0	0
St. Saviour's, Paddington	41	0	0
Emmanuel, West Dulwich	27	0	0
Miss Morice	25	0	0
Brompton Oratory	39	0	0
St. Thomas's, Regent-street (part collection)	20	0	0
Kensington Congregational Church	71	0	0
Farm-street Roman Catholic Church	24	0	0
Carmelite Church, Kensington	22	0	0
St. John's, Downshire Hill	48	0	0
St. Mark's, Kennington	29	0	0
Chigwell Parish Church	40	0	0
St. Philip's, Kensington	73	0	0
All Souls', Langham-place	66	0	0
St. John's, Notting-hill	48	0	0
St. Paul's, Forest-hill	40	0	0
Highgate Presbyterian	38	0	0
Grafton-square Congregational Church, Clapham	31	0	0
Regent's-park Baptist Church	32	0	0
Christ Church, Beckenham	31	0	0
Christ Church, Albany-street	22	0	0
Chapel Royal, Hampton Court Palace	40	0	0
Grosvenor Chapel, South Audley-street, W.	81	0	0
St. John's, Blackheath	53	0	0
St. Paul's, Camden-square	47	0	0
St. Luke's, Hackney	22	0	0
Archway-road Baptist Church	22	0	0
Stamford-hill Congregational Church	79	0	0
St. Mary's, Lewisham	47	0	0
St. Mary's, West Kensington	24	0	0
St. George's, Tufnell-park	37	0	0
Christ Church, Highbury	49	0	0
South Kensington Presbyterian Church	28	0	0
St. Andrew's Presbyterian Church, Upper Norwood	55	0	0
West London Wesleyan Mission	43	0	0
All Saints', Notting-hill	44	0	0
St. Leonard's and All Saints', Streatham	72	0	0
St. Paul's, Canonbury	27	0	0
Park Chapel, Chelsea	22	0	0
Westbourne-park Baptist Chapel	22	0	0
Regent-square Presbyterian Church	96	0	0
All Saints', Friern Barnet	35	0	0
Trinity Church, Hampstead	62	0	0
Aldenham Parish Church	86	0	0
Gray's Inn Chapel	50	0	0
St. Saviour's, Upper Chelsea	36	0	0
St. Luke's, West Holloway	33	0	0
Brompton Parish Church	81	0	0
St. Agnes's, Kennington	43	0	0
St. Luke's, West Hampstead	20	0	0
St. Mary Magdalene, Holloway	26	0	0
St. Mary the Virgin, Primrose Hill	52	0	0
Christ Church, Lee	43	0	0

MEDICAL OFFICERS OF THE HIGHLANDS AND ISLANDS OF SCOTLAND.

THE following memorial has been signed by 40 medical officers:—

Unto the Honourable the Local Government Board of Scotland, the Memorial of Medical Officers of the more remote Parishes of the Highlands and Islands of Scotland humbly sheweth—

I.—That the Medical Officers of the more remote parishes of the Highlands and Islands of Scotland are required to perform their duties by night as well as by day, and on Sundays as well as week days, and in all states of weather.

II.—That the areas of practice of many of these Medical Officers are of great extent, so that it is no uncommon occurrence for the Medical Officer to have to travel from 10 to 30 miles to see a pauper patient; that consequently his travelling expenses are heavy, and that, moreover, he is sometimes unable to return home the same night.

III.—That the work is very trying to the health of the Medical Officer, especially in winter time; yet, as matters stand, he may not leave his parish for a holiday rest unless he provides at his own expense a duly qualified and registered Medical Practitioner as his substitute.

IV.—That the salaries of the Medical Officers are small, and that the population of the districts is scattered and very poor, so that few Medical Officers can earn more than from £20 to £50 a year beyond their official parochial salary; and that consequently the expense of providing a qualified medical substitute during a reasonable holiday is out of all proportion to the emoluments attached to the office.

V.—That all other Parish Officers may have the privilege of an annual holiday without having to place a substitute in their place at their own expense; the Parish Medical Officer alone being compelled to provide such a substitute at his own expense.

VI.—That many of these Medical Officers are compelled to reside far from railway or other convenient communication with the South, so that in most cases two or three days are necessary to travel to Edinburgh or other centres of population, and that the expenses of living in such isolated districts are great and the social amenities few.

VII.—That the Local Government Board of Ireland requires that a Board of Guardians shall give its Medical Officer an annual holiday and pay a reasonable fee to a qualified substitute, and that most of these Boards have cheerfully acquiesced in this requirement.

VIII.—We, the undersigned Medical Officers, submit that, as is the rule in similar districts and under similar circumstances in Ireland, we also should be granted the privilege of an annual holiday, and that the Parish Council should pay a reasonable fee to a substitute; that if one month were allowed—deducting a week for going and returning—the Medical Officer would have a clear three weeks' holiday, and that the expense to the ratepayers would be trifling.

IX.—And the undersigned Parish Medical Officers earnestly pray that the Local Government Board of Scotland will be pleased to look into the difficulties and disadvantages, in the respects herein set out, under which their Medical Officers in the outlying districts at present labour, and will take the whole position of facts mentioned in this Memorial into consideration and grant the prayer thereof.

And your Memorialists will ever pray.

In connexion with the above the following has been presented "Unto the Honourable the Local Government Board of Scotland."

We, the undersigned Members of Imperial Parliament, and others, desire to express our sympathy with the Memorial presented by the "Medical Officers of the more remote Parishes of the Highlands and Islands of Scotland," and our hope that your Honourable Board may see its way to accede to the prayer of their Memorial:—

This memorial has been signed by the following gentlemen, viz.:—Lord Lister, Sir William Arrol, M.P., Mr. J. E. B. Baillie, M.P., Mr. Augustine Birrell, Q.C., M.P., Sir Charles Cameron, Bart., M.D., M.P., the Right Hon. J. A. Campbell, M.P., Dr. G. B. Clark, M.P., Mr. J. Colville, M.P., Mr. J. W. Crombie, M.P., Mr. Alexander Cross, M.P., Mr. J. H. Dalziel, M.P., Dr. Charles Douglas, M.P., Sir William Dunn, Bart., M.P., Dr. R. Farquharson, M.P., Sir Walter Foster, M.D., M.P., Mr. T. C. H. Hedderwick, M.P., Sir J. G. S. Kinloch, Bart., M.P., Sir John Leng, M.P., Mr. James McKillop, M.P., Mr. Donald N. Nicol, M.P., Sir George A. Pilkington, M.P., Mr. A. Robinson Souttar, M.P., Mr. H. J. Tennant, M.P., Sir W. Thorburn, M.P., Sir John Batty Tuke, M.D., M.P., Mr. Alex. Ure, Q.C., M.P., Mr. Eugene Wason, M.P., Sir W. Wedderburn, Bart., M.P., Dr. William Bruce, LL.D. (Direct Representative for Scotland on the General Medical Council), Dr. James Dunsmure (President of the Royal College of Surgeons of Edinburgh), Dr. James Andrew (President of the Royal College of Physicians of Edinburgh), Sir Hector Clare Cameron, M.D. (President of the Faculty of Physicians and Surgeons of Glasgow), Dr. T. McCall Anderson (Professor of Clinical Medicine and Dean of the Medical Faculty, University of Glasgow), Professor R. W. Reid, M.D., F.R.C.S. (Dean of the Medical Faculty of the University of Aberdeen), and Professor E. Waymouth Reid, F.R.S. (Dean of the Medical Faculty of the University of St. Andrews). Of the Faculty of Medicine of the University of Edinburgh: Professor Thomas Annandale, F.R.C.S.; Professor William S. Greenfield, M.D.; Professor Henry D. Littlejohn, M.D., LL.D.; Professor C. Hunter Stewart, M.B., D.Sc.; Professor Alex. Russell Simpson, M.D.; Sir William Turner, M.B., D.C.L., LL.D.; and Professor John Wyllie, M.D., F.R.C.P., LL.D.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6553 births and 3220 deaths were registered during the week ending July 7th. The annual rate of mortality in these towns, which had been 14·9 and 15·1 per 1000 in the two preceding weeks, fell last week to 14·5. In London the rate was 13·5 per 1000, while it averaged 15·1 in the 32 provincial towns. The lowest death-rates in these towns were 9·1 in West Ham, 9·9 in Croydon, 10·1 in Bristol, and 10·2 in Birkenhead; the highest rates were 18·9 in Salford, 19·3 in Manchester, 19·9 in Liverpool, and 24·1 in Sunderland. The 3220 deaths in these towns included 344 which were referred to the principal zymotic diseases, against 366 and 419 in the two preceding weeks; of these 89 resulted from whooping-cough, 84 from measles, 63 from diarrhœa, 53 from diphtheria, 27 from scarlet fever, 26 from "fever" and two from small-pox. The lowest death-rates from these diseases were recorded in Croydon, in Birkenhead, and in Bolton; and the highest in Derby, in Sunderland, and in Swansea. The greatest mortality from measles occurred in Oldham and in Derby; from whooping-cough in Sunderland and Wolverhampton; and from diarrhœa in Gateshead. The 53 deaths from diphtheria included 20 in London, four in Swansea, four in Liverpool, and four in Leeds. Two fatal cases of small-pox were registered in Liverpool, but not one in any other of the 33 towns. There were 17 cases of small-pox under treatment in the Metropolitan Asylums Hospitals on Saturday last, July 7th, against 15, 13, and 16 at the end of the three preceding weeks; four new cases were admitted during the week, against eight, none, and eight in the three preceding weeks. The number of scarlet fever patients in the Metropolitan Asylums Hospitals and in the London Fever Hospital at the end of the week was 1843, against numbers increasing from 1754 to 1810 on the four preceding Saturdays; 229 new cases were admitted during the week, against 210, 219, and 210 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 181 and 180 in the two preceding weeks, further fell last week to 140, and were 48 below the corrected average. The causes of 46, or 1·6 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, in Nottingham, in Cardiff and in 10 other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool and in Hull.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 16·5 and 17·9 in the two preceding weeks, fell again to 17·7 during the week ending July 7th, but was 3·2 per 1000 above the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 8·4 in Perth and 9·3 in Paisley to 20·2 in Dundee and 20·3 in Glasgow. The 546 deaths in these towns included 32 which were referred to diarrhœa, 22 to whooping-cough, 20 to measles, four to scarlet fever, three to "fever," two to diphtheria, and two to small-pox. In all 85 deaths resulted from these principal zymotic diseases, against 60 and 83 in the two preceding weeks. These 85 deaths were equal to an annual rate of 2·8 per 1000, which was 1·3 above the mean rate last week from the same diseases in the 33 large English towns. The 22 fatal cases of whooping-cough showed a decrease of four from the number in the preceding week and included 17 in Glasgow. The deaths referred to measles, which had been 14 and 18 in the two preceding weeks, further rose last week to 20 and included 13 in Glasgow and three in Edinburgh. The fatal cases of diarrhœa, which had increased from 19 to 24 in the two preceding weeks, further rose last week to 32 and included 16 in Glasgow, five in Edinburgh, four in Dundee, four in Aberdeen, and three in Leith. The deaths referred to scarlet

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JUNE, 1900.

(*Specially compiled for* THE LANCET.)

SANITARY AREAS.	Estimated population in the middle of 1900.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.†	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON...	**4,589,129**	**23**	**1105**	**769**	**1**	**203**	**3**	**12**	**328**	—	**2444**	**6·9**	—	**217**	**7**	**101**	**174**	—	**30**	**2**	**55**	**616**	**1·7**	**5201**	**14·8**	**117**
West Districts.																										
Paddington	130,104	5	24	3	—	3	—	—	12	—	47	4·7	—	19	—	1	5	—	—	—	3	28	2·8	134	13·4	148
Kensington	173,603	5	29	13	—	7	—	1	8	—	63	4·7	—	12	—	4	1	—	—	—	1	18	1·4	162	12·2	116
Hammersmith	110,203	—	26	13	—	6	—	—	10	—	55	6·6	—	7	2	1	3	—	1	—	1	15	1·8	125	14·8	162
Fulham	136,383	3	33	30	—	4	—	—	9	—	79	7·6	—	2	3	2	6	—	1	—	3	17	1·6	134	12·8	116
Chelsea	96,715	—	25	9	—	1	—	1	6	—	42	8·7	—	1	—	—	3	—	1	—	3	8	1·1	110	14·9	107
St. George Hanover-square	81,133	—	17	4	—	4	—	—	4	—	29	4·7	—	—	1	—	—	—	—	—	—	1	0·2	73	11·7	71
Westminster	51,657	—	14	8	—	1	—	—	2	—	25	6·3	—	3	—	1	—	—	2	—	—	6	1·5	65	16·4	103
St. James Westminster	21,457	—	5	6	—	—	—	—	—	—	11	6·7	—	—	—	1	—	—	—	—	—	1	0·6	19	11·5	73
North Districts.																										
Marylebone	139,777	—	39	15	—	3	—	1	20	—	78	7·3	—	13	1	1	9	—	—	1	2	27	2·5	175	16·3	98
Hampstead	81,766	—	12	12	—	3	—	—	4	—	31	4·9	—	3	—	1	—	—	—	—	—	4	0·6	47	7·5	28
St. Pancras	245,851	—	56	49	—	24	1	2	9	—	141	7·5	—	17	2	4	5	—	4	—	1	33	1·8	276	14·6	94
Islington	351,541	—	62	43	1	16	1	—	23	—	146	5·4	—	28	4	11	20	—	2	—	5	70	2·6	393	14·6	144
Stoke Newington	35,718	—	5	5	—	4	—	—	2	—	16	5·8	—	—	—	1	3	—	1	—	1	6	2·2	37	13·5	108
Hackney	225,519	1	78	30	—	13	—	—	13	—	135	7·8	—	2	1	5	14	—	—	—	1	23	1·3	202	11·7	89
Central Districts.																										
St. Giles	36,870	—	3	3	—	4	—	—	2	—	12	4·2	—	2	—	1	2	—	1	—	—	6	2·1	45	15·9	123
St. Martin-in-the-Fields	11,885	—	1	—	—	1	—	—	1	—	3	3·3	—	—	—	—	—	—	—	—	—	—	—	20	22·0	77
Strand	22,748	—	4	4	—	1	—	—	2	—	11	6·3	—	—	—	—	1	—	1	—	—	2	1·1	39	22·4	200
Holborn	29,188	—	9	4	—	2	—	—	2	—	17	7·6	—	3	—	—	2	—	1	—	1	7	3·1	62	27·7	245
Clerkenwell	66,007	—	18	8	—	5	—	—	6	—	37	7·3	—	7	2	2	5	—	—	—	—	16	3·2	95	18·4	121
St. Luke	40,655	—	14	7	—	2	—	—	3	—	26	8·3	—	2	1	1	—	—	—	—	1	5	1·6	80	25·6	121
City of London	26,922	—	7	4	—	—	—	—	—	—	11	5·3	—	—	2	1	—	—	—	—	—	2	1·0	37	17·9	120
East Districts.																										
Shoreditch	120,641	—	25	39	—	9	—	—	6	—	79	8·5	—	8	3	7	8	—	1	1	3	31	3·3	172	18·5	139
Bethnal Green	128,831	1	41	40	—	8	—	—	22	—	112	11·3	—	2	1	14	6	—	1	—	1	25	2·5	156	15·8	108
Whitechapel	82,220	—	50	22	—	3	—	—	12	—	87	13·8	—	2	1	—	3	—	1	—	2	9	1·4	109	17·3	80
St. George-in-the-East	48,875	6	17	4	—	3	—	—	8	—	38	10·1	—	2	1	1	2	—	—	—	—	6	1·6	79	21·1	95
Limehouse	58,944	—	22	25	—	2	—	—	6	—	55	13·2	—	13	2	1	7	—	—	—	3	26	5·8	133	29·4	308
Mile End Old Town	113,781	—	32	14	—	3	—	—	17	—	66	7·6	—	13	2	1	7	—	—	—	3	23	2·6	137	15·7	124
Poplar	170,968	—	35	28	—	7	—	—	17	—	87	6·6	—	16	—	2	9	—	—	—	3	30	2·3	240	18·3	185
South Districts.																										
St. Saviour Southwark	23,854	—	5	5	—	1	—	—	1	—	12	6·6	—	1	—	—	—	—	—	—	—	1	0·5	45	24·6	108
St. George Southwark	60,597	—	23	13	—	—	—	—	6	—	42	9·0	—	1	2	—	5	—	—	—	1	9	1·9	68	21·1	164
Newington	125,178	—	24	37	—	5	—	—	7	—	73	7·6	—	6	—	5	2	—	1	—	3	17	1·8	157	16·4	133
St. Olave Southwark	10,909	—	9	3	—	—	—	—	—	—	12	14·3	—	1	—	—	—	—	—	—	—	1	1·2	16	19·1	129
Bermondsey	85,920	—	18	20	—	3	—	1	5	—	47	7·1	—	1	—	4	6	—	3	—	—	13	2·0	103	15·6	131
Rotherhithe	41,246	—	8	4	—	3	—	—	3	—	18	5·7	—	1	1	2	2	—	—	—	—	6	1·9	47	14·9	99
Lambeth	312,152	—	56	63	—	10	1	1	18	—	149	6·2	—	1	1	9	2	—	2	—	4	19	0·8	310	12·9	84
Battersea	178,100	—	45	12	—	6	—	1	14	—	78	5·7	—	2	1	1	7	—	1	—	4	16	1·2	178	13·0	119
Wandsworth	217,004	—	34	24	—	11	—	—	14	—	83	5·0	—	10	1	3	3	—	2	—	3	22	1·3	194	11·7	107
Camberwell	268,457	1	63	58	—	8	—	1	11	—	142	6·9	—	2	—	5	8	—	2	—	1	16	0·8	256	12·4	126
Greenwich	184,582	—	55	32	—	6	—	1	11	—	105	7·4	—	5	1	4	12	—	—	—	—	22	1·6	216	15·3	112
Lewisham (excluding Penge)	93,548	—	30	21	—	5	—	—	3	—	59	8·2	—	—	—	2	2	—	—	—	3	7	1·0	73	10·2	67
Woolwich...	41,600	—	7	2	—	1	—	2	1	—	13	4·1	—	4	—	1	1	—	—	—	—	6	1·9	58	18·2	107
Lee	40,722	—	6	14	—	3	—	—	4	—	27	13·1	—	1	—	—	—	—	1	—	1	4	1·3	30	9·6	77
Plumstead	65,558	—	19	19	—	—	—	—	3	—	41	5·4	—	7	1	1	3	—	—	—	—	12	2·4	66	13·1	87
Port of London	—	1	—	—	—	2	—	—	1	—	4	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—

* Including 12 cases of membranous croup.

† Including deaths from membranous croup.

fever, which had been two and seven in the two preceding weeks, fell last week to four, and included three in Glasgow. The three deaths from fever and the two from small-pox occurred in Glasgow. The two deaths from diphtheria included one in Edinburgh and one in Greenock. The deaths from diseases of the respiratory organs in these towns, which had been 87 and 97 in the two preceding weeks, fell last week to 72, but were 15 above the number in the corresponding period of last year. The causes of 31, or nearly 6 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 17·9 and 20·0 per 1000 in the two preceding weeks, fell again to 17·8 during the week ending July 7th. During the four weeks ending on Saturday last the death-rate in the city averaged 19·9 the rate during the same period having been 14·7 in London and 17·3 in Edinburgh. The 119 deaths registered in Dublin during the week under notice showed a decline of 15 from the number in the preceding week, and included six which were referred to the principal zymotic diseases, against four and three in the two preceding weeks; of these, three resulted from whooping-cough, two from diarrhœa, one from fever, and not one from small-pox, measles, scarlet fever, or diphtheria. These six deaths were equal to an annual rate of 0·9 per 1000, the zymotic death-rate during the same period being 1·5 in London and 1·7 in Edinburgh. The fatal cases of whooping-cough, which had risen from one to two in the two preceding weeks, further rose to three last week, and the two deaths from diarrhœa showed an increase of one. The 119 deaths in Dublin last week included 22 of infants under one year of age and 26 of persons aged upwards of 60 years; the deaths of infants were about equal to the average, but those of elderly persons were below those recorded in recent weeks. Seven inquest cases and six deaths from violence were registered; and 45, or rather more than one-third of the deaths occurred in public institutions. The causes of six, or 5 per cent., of the deaths in the city last week were not certified.

VITAL STATISTICS OF LONDON DURING JUNE, 1900.

IN the accompanying table will be found complete statistics relating to sickness and mortality in each of the 43 sanitary areas of London. With regard to the notified cases of infectious diseases in the metropolis, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 6·9 per 1000 of the population, estimated at 4,589,129 persons in the middle of the year. In the three preceding months the rates had been 6·6, 6·2, and 7·2 per 1000 respectively. The rates were considerably below the average in Paddington, Kensington, St. George Hanover-square, St. Giles, St. Martin-in-the-Fields, and Woolwich; while they showed the largest excess in Bethnal Green, Whitechapel, St. George-in-the-East, Limehouse, St. Olave Southwark, and Lee sanitary areas. 23 small-pox cases were notified during June, of which six belonged to St. George-in-the-East, five to Paddington, five to Kensington, and three to Fulham sanitary areas; 20 small-pox patients were admitted into the Metropolitan Asylums Hospitals during June, and 16 remained under treatment at the end of the month. The prevalence of scarlet fever showed a further increase upon that recorded in recent months; among the various sanitary areas this disease was proportionally most prevalent in Hackney, Whitechapel, St. George-in-the-East, Limehouse, St. George Southwark, and St. Olave Southwark. The Metropolitan Asylums Hospitals contained 1738 scarlet fever patients at the end of June, against 1654, 1619, and 1735, at the end of the three preceding months; the weekly admissions averaged 202, against 162, 174, and 198 in the three preceding months. The prevalence of diphtheria showed a slight decline from that in the preceding month; the proportional prevalence of this disease was greatest in Shoreditch, Bethnal Green, Limehouse, Newington, Lee, and Plumstead sanitary areas. There were 1212 diphtheria patients in the Metropolitan Asylums Hospitals at the end of June, against 1236, 1131, and 1402 at the end of the three preceding months; the weekly admissions averaged 151, against 148, 135, and 172 in the three preceding months. The prevalence of enteric fever showed a further decrease from that recorded in recent months; among the various sanitary areas this disease was proportionally most prevalent in St. Pancras, Stoke Newington, St. Giles, St. Martin-in-the-Fields, Clerkenwell, and Lee. The Metropolitan Asylums Hospitals contained 148 enteric fever patients at the end of June, against 263, 208, and 176 at the end of the three preceding months. Erysipelas was proportionally most prevalent in Paddington, Marylebone, Bethnal Green, Whitechapel, St. George-in-the-East, and Mile End Old Town sanitary areas. The 12 cases of puerperal fever included two in St. Pancras and two in Woolwich sanitary areas.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various sanitary areas of the metropolis, the deaths occurring in the public institutions of London having been distributed among the sanitary areas in which the patients had previously resided. During the four weeks ending June 30th the deaths of 5201 persons belonging to London were registered, equal to an annual rate of 14·8 per 1000, against 19·1, 20·2, and 16·6 in the three preceding months. The lowest death-rates last month in the various sanitary areas were 7·5 in Hampstead, 9·6 in Lee, 10·2 in Lewisham, 11·5 in St. James Westminster, and 11·7 in St. George Hanover-square, in Hackney, and in Wandsworth; the highest rates were 22·0 in St. Martin-in-the-Fields, 22·4 in Strand, 24·6 in St. Saviour Southwark, 25·6 in St. Luke, 27·7 in Holborn, and 29·4 in Limehouse. During the four weeks of June 616 deaths were referred to the principal zymotic diseases in London; of these, 217 resulted from measles, 37 from scarlet fever, 101 from diphtheria, 174 from whooping-cough, 30 from enteric fever, two from simple continued fever, and 55 from diarrhœa. These 616 deaths were equal to an annual rate of 1·7 per 1000, against 1·8 in each of the two preceding months. No death from any of these diseases occurred last month in St. Martin-in-the-Fields; in the other sanitary areas they caused the lowest death-rates in St. George Hanover-square, St. James Westminster, Hampstead, St. Saviour Southwark, Lambeth, and Camberwell; and the highest rates in Paddington, Holborn, Clerkenwell, Shoreditch, and Limehouse. The 217 deaths from measles were 81 below the average number in the corresponding periods of the ten preceding years; this disease was proportionally most fatal in Paddington, Holborn, Clerkenwell, Limehouse, Mile End Old Town, and Plumstead sanitary areas. The 37 fatal cases of scarlet fever showed a decline of 29 from the corrected average number; the greatest proportional fatality from this disease occurred in Fulham, Clerkenwell, City of London, Shoreditch, Limehouse, and St. George Southwark sanitary areas. The 101 deaths from diphtheria were 47 below the average number in the corresponding periods of the ten preceding years; among the various sanitary areas this disease was proportionally most fatal in Shoreditch, Bethnal Green, Newington, Bermondsey, Rotherhithe, and Lambeth. The 174 fatal cases of whooping-cough were three in excess of the corrected average number; this disease showed the highest proportional fatality in Stoke Newington, Holborn, Clerkenwell, Limehouse, St. George Southwark, and Bermondsey sanitary areas. The 32 deaths referred to "fever" were slightly below the number in the corresponding periods of the ten preceding years; among the various sanitary areas the "fever" death-rate was highest in Westminster, St. Pancras, Stoke Newington, Strand, Holborn, and Bermondsey sanitary areas. The 55 fatal cases of diarrhœa were only one-third of the corrected average number; the greatest proportional fatality from this disease was recorded in Chelsea, Stoke Newington, Holborn, St. Luke, Limehouse, and Lewisham sanitary areas. In conclusion, it may be stated that the aggregate mortality from these principal zymotic diseases in London during June was 30 per cent. below the average.

Infant mortality in London last month, measured by the proportion of deaths of children under one year of age to registered births, was equal to 117 per 1000. The lowest rates of infant mortality were recorded in St. George Hanover-square, St. James Westminster, Hampstead, St. Martin-in-the-Fields, Lewisham, and Lee; and the highest rates in Hammersmith, Strand, Holborn, Limehouse, Poplar, and St. George Southwark sanitary areas.

THE SERVICES.

MR. BURDETT-COUTTS'S CHARGES.

THE terms of reference of the proposed commission which is to proceed to South Africa are as follows:—"To report on the arrangements for the care and treatment of the sick and wounded during the South African Campaign."

ROYAL NAVY MEDICAL SERVICE.

The following appointments are notified:—Staff-Surgeons: J. H. Thomas to the *Camperdown*, lent, and A. M. Page to the *Australia*.

ROYAL ARMY MEDICAL CORPS.

The under-mentioned surgeons-on-probation to be lieutenants: Patrick Hagart Henderson, John Patrick Joseph Murphy, Arthur Rowland Greenwood, Frederick Hallam Hardy, William Moreland Haladay Spiller, Archibald Douglas Jameson, William Bennett, Bernard Bruce Burke, Walter Burgess Fry, Charles Richard Louis Ronayne, George Baillie, Llewellyn Lancelot Græme Thorpe, John Blake Hall, William Silvister Crosthwait, Percy Clarence Douglass, Richard Francis Ellery, Robert Lionel Popham, The following among them have arrived at Salisbury Plain and have been posted in the district as follows: Perham Down—B. B. Burke, to charge of stationary hospital; C. R. Ronayne, to charge of 3rd Brigade and duty in hospital; and W. B. Fry, stationary hospital and medical charge of details in Tidworth House. Bulford Camp—F. H. Hardy, to charge of stationary hospital; G. Baillie and G. Douglass, for duty in stationary hospital; and J. B. Hall, to charge of 2nd Brigade. West Down Camp—W. S. Crosthwait, to charge of details.

MILITIA MEDICAL STAFF.

Surgeon-Lieutenant-Colonel D. Jacob, 4th Battalion the Prince of Wales's Leinster Regiment (Royal Canadians), retires under paragraph 81 Militia Regulations, with permission to retain his rank and to wear the uniform of the battalion on retirement.

VOLUNTEER CORPS.

Artillery: 4th Durham (Western Division, Royal Garrison Artillery): William Gray to be Surgeon-Lieutenant. 1st Forfarshire: James Gray to be Surgeon-Lieutenant. 1st Glamorganshire: Surgeon Lieutenant D. A. Davies to be Surgeon-Captain. 1st Shropshire and Staffordshire: Surgeon-Captain J. P. Massingham to be Surgeon-Major. The undermentioned gentlemen to be Surgeon-Lieutenants:—George Higginson and Wheelton Hind. 2nd Gloucestershire (the Bristol): Lieutenant T. H. Board to be Captain and Marcus John Eustace to be Surgeon-Lieutenant. *Rifle:* 3rd Volunteer Battalion the King's (Liverpool Regiment): Lieutenant Henry D'Arnim Blumberg resigns his commission and is appointed Surgeon-Lieutenant.

VOLUNTEER MEDICAL STAFF.

The London Companies: Surgeon-Lieutenant W. S. Sharpe to be Surgeon-Captain. The Woolwich Companies: Alfred Hugh Minton to be Surgeon-Lieutenant.

TRANSVAAL WAR NOTES.

The following have left for service in South Africa:—Civil Surgeons Owen, Davies, Ffrench, and Hunter.

The following have arrived in England from South Africa:—Major Kelly, R.A.M.C., Lieutenant Nicholls, R.A.M.C., Lieutenant Irvine, R.A.M.C., Major Whaite, R.A.M.C., Captain Dalton, R.A.M.C., Lieutenant Cuddon-Fletcher, R.A.M.C., and Civil Surgeons Nicol, Goodman, Thomas, and Stamford.

Major Nichol, R.A.M.C., is reported from Cape Town discharged from hospital to duty.

The following steamers have arrived at Southampton, bringing the sick and wounded men as detailed from the seat of war in South Africa:—The *Maine*, on July 4th, with 16 very severe cases; the *Aroca*, on July 5th, with 50 cases; the *Assaye*, on July 7th, with 693 sick and wounded; and the *Princess of Wales*, on July 9th, with 170 patients. On Tuesday afternoon, July 10th, H.R.H. the Duchess of York visited the Royal Victoria Hospital and was conducted over the surgical and medical divisions by Colonel Charlton (principal medical officer) and his staff. In the medical division Lieutenant-Colonel W. E. Webb, and in the surgical division Major C. Birt, explained the nature of the cases.

Six medical men and a number of nurses and ward maids have left for South Africa in the *Dunvegan Castle*. They form part of the remainder of the staff of the Imperial Yeomanry Hospital now being formed at Pretoria. The complete medical staff will be as follows:—Dr. W. Langdon Brown and Dr. Herbert Williamson, St. Bartholomew's Hospital; Dr. F. M. Sandwith, Kasr el Aini Hospital, Cairo; Dr. Stanley F. Crowther Smith, Mr. A. R. J. Douglas, and Mr. Howell Davies, St. Bartholomew's Hospital; Dr. F. Brickwell and Mr. F. L. Provis, Tottenham Hospital; and Mr. A. H. Hayes and Mr. C. S. Frost. Major Reade, R.A.M.C., is the commandant.

Of the 1009 invalid soldiers who have arrived at Plymouth during the past two months from South Africa only 120 now remain at the Military Hospital, Devonport. The majority of these are convalescent and will be shortly sent on sick furlough.

TRANSVAAL WAR CASUALTIES.

Surgeon-Lieutenant-Colonel James Creagh, 9th Battalion King's Royal Rifle Corps (North Cork Militia), died from enteric fever on July 6th, between Viljoen's Drift and Kroonstad.

THE RISING IN ASHANTI.

A telegram received from Mr. Low (Gold Coast) by the Colonial Office, dated Akwabosu, July 1st, says: "Crossed Ofin river June 30th and July 1st. Following Europeans left Kumassi with force. ..... Medical Officers Garland, Chalmers, Tweedy, Graham, Gold Coast Colony, (and) Macfarlane of Lagos. ..... Passage across Ofin river very difficult owing to floods. Hardships of journey from Kumassi have been very severe. Most of the severely wounded Hausas have since died; others are missing. In addition to officers mentioned in previous telegram as left in charge of fort add name of Hay, medical officer.—HODGSON."

THE NAVAL MEDICAL SUPPLEMENTAL FUND.

At the quarterly meeting of the Directors of the Naval Medical Supplemental Fund, held on July 10th, Sir J. N. Dick, K.C.B., late Director-General, R.N., being in the chair, the sum of £55 was distributed among the several applicants.

VOLUNTEER MEDICAL ASSOCIATION.

The annual meeting of the Volunteer Medical Association will be held at 20, Hanover-square, on Tuesday, July 24th, at 4.30 P.M. The council will meet at 4 P.M. Surgeon-Major John J. de Zouche Marshall, 3rd Volunteer Battalion the East Surrey Regiment, has been elected to the post of honorary secretary, vice Surgeon-Captain F. J. Warwick, V.M.S.C.

Deputy Surgeon-General Henry Cayley (retired), Indian Medical Service, has been appointed Honorary Surgeon to the Queen, vice Surgeon-Major A. Grant (retired), Indian Medical Service, deceased.

At Windsor Castle on July 7th the following Companions of the Order of the Bath were introduced into the presence of the Sovereign, and Her Majesty the Queen was graciously pleased to affix to their respective left breasts the Decoration of the Military Division of the Third Class of the Order: Colonel William Egerton Saunders, Royal Army Medical Corps; Surgeon-General Henry Skey Muir, Deputy Director-General Army Medical Service; and Surgeon-Lieutenant-Colonel Benjamin Bloomfield Connolly, A.M.S.

Correspondence.

"Audi alteram partem."

"THE LECTURERS AND LECTURES AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND FROM 1810 TO 1900."

To the Editors of THE LANCET.

SIRS,—Your kind and appreciative notice in an annotation in THE LANCET of June 30th (p. 1894) of my "List of Lecturers and Lectures at the Royal College of Surgeons of England, 1810–1900," encourages me to ask you to be so good

MUSEUM LECTURES.

COMPARATIVE ANATOMY.

Date of delivery.	Name of lecturer.	Number of lectures.	Title of lecture.
1814	Astley Paston Cooper.	15	Comparative Anatomy.
1815	Astley Paston Cooper.	15	Comparative Anatomy.
1816	William Lawrence.	15	An Introduction to Comparative Anatomy and Physiology.
1822	Everard Home.	15	Comparative Anatomy.
1829	Herbert Mayo.	15	Anatomy and Physiology of the Nervous System in the Different Classes of Animals. Development of the Brain in Man and Functions of the Cerebral Nerves.
1830	Herbert Mayo.	15	Anatomy and Physiology of the Organs of Sense in the Different Classes of Animals. Physiology of Sleep, Volition, Muscular Action, Respiration, and Vocal Organs.
1832	Charles Bell.	15	On Life and Organisation; on the Skeleton; and on the Physiology of the Nervous System.
1833	Charles Bell.	15	On the Prospective Design indicated by the Adaptation of the Organs of Support, or the Hard Parts, of the Different Classes of Animals to their Habits, and to the Circumstances in which they are Placed. The Teeth in the Different Classes of Animals, and the Different Kinds of Articulation of the Bones, and the Arrangement of the Muscles similarly considered. Physiology of the Nervous System as connected with the Anatomy of Expression.
			SURGERY.
1819	James Wilson.	9	Lectures on the Blood and on the Anatomy, Physiology, and Surgical Pathology of the Vascular System of the Human Body.*
1820	James Wilson.	9	Lectures on the Structure and Physiology of the Parts composing the Skeleton and on the Diseases of the Bones and Joints of the Human Body, preceded by some Observations on the Influence of the Brain and Nerves.
1821	James Wilson.	9	Lectures on the Structure and Physiology of the Male Urinary and Genital Organs of the Human Body and on the Nature and Treatment of their Diseases.†
1829	George James Guthrie.	9	Anatomy of the Circulating System in Man; History of its Development and Comparison of the Different Stages with the Permanent Structures in Inferior Animals. Functions of the Heart and Arteries and Veins. Injuries and Diseases of the Vascular System in Man and the Treatment of the Same.
1830	George James Guthrie.	9	On the Anatomy of the Human Pelvis: its Sexual and National Varieties; Comparison of it with the Pelvis in other Animals. On the Anatomy of the Human Urinary and Sexual Organs, illustrated by Observations of the Same Parts in the Inferior Classes of Animals. On Wounds and Injuries of the Head and Chest. On the Diseases of the Urinary and Sexual Organs, and more especially of Diseases of the Urethra.
1831	George James Guthrie.	3	On the Anatomy of the Parts concerned in Hernia.‡
1832	George James Guthrie.	9	Anatomy of the Organ of Vision in Man, illustrated by Observations on its Structure in the Lower Animals. On the Diseases of the Eye and its Appendages and the Treatment of the Same.
1833	Henry Earle.	9	On the Minute Anatomy and Physiology of the Urinary Organs. On the Diseases of the Same and their Treatment. On the Anatomy of the Colon, and the Nature and Treatment of Some of the Diseases of that Intestine.§

* Wilson completed this course in his Arris and Gale Lectures of this year.

† Wilson, who died in this year, had arranged for a further course on "The Brain and Nervous System."

‡ This course of lectures proceeded amidst much disturbance until the fourth lecture, when they were wholly interrupted by a systematic and continued riot. The lectures were consequently suspended and the theatre closed by the advice of the law officers of the College and by the concurrence of the trustees of the Museum until the sanction of the Chancellor and judges had been obtained to a by law enabling the President and Council to repress any similar disturbances in future.

§ Earle continued this course in the Arris and Gale Lectures of the same year.

is to give publicity to the accompanying amplifications and corrections of my pamphlet. Many of them I owe to Mr. D'Arcy Power; upon others I have chanced in a research into the history of the College. As the "list" is given away, not sold, to anyone interested in medical history it is not likely that it will see a second edition.

I am, Sirs, yours faithfully,

VICTOR G. PLARR,
Librarian of the College.

The Library, Royal College of Surgeons of England, July 2nd, 1900.

THE SOUTH AFRICAN COMMISSION.

To the Editors of THE LANCET.

SIRS,—As in the Crimea and in Egypt, so now in South Africa, war on a large scale seems to have as its invariable sequel accusations of neglect of sick and wounded involving mainly the Army Medical Department as responsible for the results, the conclusions of committees being hitherto impotent in the prevention of repetition of charges or of the conditions complained of. Another inquiry is in progress and it is a matter of profound importance to the accused department (for this is clearly the position of the Royal Army Medical Corps) that the proposed Commission should be so constituted as to contain within itself the means of eliciting the truth and the whole truth, and the requisite capacity to recognise and gauge the real import of the evidence; and from the facts adduced to fix the responsibility for shortcomings on the right shoulders and make proposals likely to prevent a recurrence in the future. Now, Sirs, when we note the tone of some of the debates in the House of Commons, the vacillation of the Government and the views expressed in the lay journals, I venture to think that to anyone bearing in mind the experience of the past and cognisant of army life, the duties of the Royal Army Medical Corps and the conditions under which its work has to be done in peace and in war, a feeling of grave scepticism will arise as to whether this Commission as proposed will be any more fruitful in results than its predecessors.

The original scope of the Commission as formulated by the Government was "to report as to the arrangements for the care and treatment of the sick and wounded during the campaign in South Africa" and to inquire especially into the complaints of negligence in regard to enteric fever; and to this end the Commission was constituted of three members—one judge and two medical men. And in view of the fact that the subjects embraced by it are mainly professional, requiring not merely "common sense," but a specially trained technical sense for their solution, the commission was one fairly capable of doing the duty entrusted to it. Mr. Balfour spoke of it as having "great qualities of knowledge and impartiality stamped upon it," and the Leader of the Opposition considered the medical members are "high-minded, straightforward men who will do their work well." Yet what do we find but the Government departing from their scheme, to which we must assume they had given reasonable thought, and agreeing to add two more members, neither of whom can have the necessary knowledge to guide them in such a professional inquiry, the numerical deciding power being now in the hands of those untrained to gauge the true import of the evidence and facts adduced! Moreover, the main objection to the original commission apparently was "that the inquiry would practically be in the hands of medical men," the view being held by some that medical men could not be relied on to act fairly in matters in which their fellow professionals were concerned, they presumably being deficient in that sense of justice and rectitude of purpose allowed to most men; and these are points which the profession would do well to lay to heart.

Further it would appear that the inquiry is to be extended to transport, &c. In the words of the leading Conservative journal, "the whole question of hospital administration at the seat of war and the general organisation and methods of the Royal Army Medical Corps will be thoroughly examined." And when cognisance is taken of this expansion the doubt still more is increased as to whether the Commission as proposed has the necessary capacity for the duties with which it is charged. In addition to what has been aforesaid, who among its members have that experience of war and that practical knowledge of the rules and regulations of the Service and the nature and work of the Royal Army Medical Corps and the conditions under which it is done as will entitle them to speak with authority on the matters to be inquired into?

Mr. Balfour himself expressed the possibility of the danger of unfairness to the army medical officers from the medical members owing to the former "carrying out their duties under conditions not very familiar to doctors and surgeons at home"—a danger augmented with a majority with everything to learn. And when we note the remarks of Mr. Burdett-Coutts *apropos* of himself we further recognise the possibility of injustice accruing either to the Department or to individual members. He is recorded to have said that in his grave indictment of the medical arrangements in South Africa he was originally in a position of a plaintiff, but now in that of a defendant of the great interest involved in the truth or untruth of his statement; and, going on to say that now the Government would call him as a witness to enable him to state his case with possibly the opportunity of producing other witnesses, he asks: "Was that enough in this case? What was the usual practice when a man was placed in his position? Had he not a right to put what questions he liked, to cross-examine the witnesses?"—questions which elicited cheers. Now it is apparent that the Department is the true defendant in this inquiry, and its position is exactly that which Mr. Burdett-Coutts details as characterising himself; and if these essentials to justice are requisite in the one instance why not in the other? Can it for a moment be said that the proposed Commission will contain within itself these essentials? What might go far towards placing it in a position to do for the Department what it cannot do for itself would be to add to it one or two independent army medical officers whose knowledge and experience would tend towards eliciting the whole truth and giving proper weight and importance to the facts adduced.

Well, Sirs, I take it for granted that the view of the Department is that neither in the Crimean nor in the Egyptian inquiry was justice meted out to it, and the possibility of a like fate befalling it in this instance has to be faced; not, of course, from set purpose, but from inability on the part of a Commission as proposed to decide on technical points and disentangle and rightly apportion its true responsibility among the more powerful army sections (including, of course, the War Office) which are also involved in this important and difficult inquiry. What does the country really want—a "scapegoat" for the relief of its feelings with a lapse into the old ways, as formerly, as soon as the excitement of war has passed away? Or is it for once thoroughly determined that the experience and teaching of the past shall not be lost, but shall bear such fruit as to make a recurrence of such departmental complaints an impossibility in the future? Have we solid grounds for such a hope?

I am, Sirs, yours faithfully,

FRANCIS H. WELCH, F.R.C.S. Eng.,
Surgeon-Colonel (retired), A.M.S.

Brandram-road, Lee, S.E., July 9th, 1900.

"THE CAUSE OF CARIES OF THE TEETH."

To the Editors of THE LANCET.

SIRS,—Dr. J. Sim Wallace holds that the great prevalence of dental caries among civilised peoples is due to their eating soft and pappy foods requiring little mastication. Some years ago you were good enough to publish in THE LANCET a letter from me in which I urged the same view. My interest in the subject led me to read Dr. Wallace's work carefully directly it appeared, and I hope I may be permitted to say that I was greatly impressed by the closeness of his arguments and the scientific spirit pervading his book.

My original contention was that soft foods predispose to caries by leading to imperfect mastication and thus to defective nutrition and development of the teeth; and although I still venture to think that this may be a factor Dr. Wallace has converted me to his view that soft foods lead to caries essentially by modifying the buccal environment of the teeth—the teeth being no longer properly cleansed by coarse fibrous foods, the buccal secretions being no longer adequately excited, and so forth.

Regarding Dr. Wallace's remarks as to the tooth-brush not being altogether an unmixed blessing, it is significant that the very next day after reading them there consulted me a man, aged 22 years, who had never in his life used a tooth-brush, and he had 32 sound teeth in his head.

I feel convinced that if Dr. Wallace's views are taken to heart by the medical profession we shall do much to diminish caries and other defects of the teeth. I, indeed, believe with him that we have it in our power to rear a race having teeth every bit as good as those of our primitive ancestors.

May I take this opportunity of saying that there is, in my opinion, a further indictment to be made against the use of soft food. I believe we have in the imperfect mastication which foods of this kind lead to a clue to the long sought-for pathology of adenoids—a subject with which I am dealing fully elsewhere.

I am, Sirs, yours faithfully,

Wimpole-street, W., July 9th, 1900. HARRY CAMPBELL.

To the Editors of THE LANCET.

SIRS,—The cause of caries of the teeth must be one of universal distribution and I have for years expressed my opinion that it is the universal consumption of bread made from flour deprived almost entirely of "earthy matter"; every particle of bran, which contains nearly all the above, being removed therefrom, the mother's blood therefore is deficient in the constituents necessary to properly build up and consolidate the bones and teeth of the fœtus. Every generation will, I fear, get worse and worse unless something can be done to improve the character of the bread consumed. Now I am writing may I be allowed to say that I have met with two cases in which mothers have vaccinated themselves accidentally from their babes; it is, therefore, I should think, not so very uncommon. I am, Sirs, yours faithfully,

Donington, Spalding, July 10th, 1900. E. W. JOLLYE.

"A PLEA FOR EARLY OPERATION IN CASES OF UNDOUBTED TUBERCLE OF THE LUNG."

To the Editors of THE LANCET.

SIRS,—The recent article in THE LANCET written by Mr. Foster Palmer on "A Plea for Early Operation in Cases of Undoubted Tubercle of the Lung" reminds me of a paper that I wrote some years ago but did not publish. By early operation I suppose the writer means such to attempt a radical cure, and not a palliative measure such as incision and drainage of advanced phthisis with pleural adhesions. None of the present procedures are well adapted for a radical excision, and such is rarely attempted, the fears of pneumothorax and hæmothorax deterring the surgeon from operating. But in the course of every lung case there must happen a time when, though the chance of medical cure is past, there still exists a time for radical excision before it advances too far. Let us take a case of a young person with phthisis in the apex of one lung which has gone on to cavity formation and in which there are as yet no pleural adhesions. If excision be desired how shall we proceed? In the article referred to the procedures are as follows. 1. To sew the pulmonary pleura to the costal pleura beyond the seat of the disease before operating. In such a case as the above this would be impossible. It would do in a case of large cavities with no pleural adhesions and some reasons against excision, such as the other lung affected, and then would only be as a preliminary to incising and draining. 2. To trust to previous existence of adhesions. This is not the case as above and if present would prevent a radical excision. 3. To excite artificial adhesions. This is dangerous, uncertain, and leaves a pathological lesion and a breeding-place for tubercle behind in a tuberculous subject. 4. Artificial inflation. This is unsatisfactory and the moving lung would hinder the operation. The method which I proposed was to collapse the lung artificially on the affected side by passing into the pleural cavity a suitable medium such as sterilised air, or preferably sterilised water or a weak antiseptic solution. This treatment is commenced some days before opening the chest and may be done by placing a small tube in one of the lower intercostal spaces and opening into the pleural cavity and fitted with tubing and stopcocks. The medium is passed in certain quantities daily and gradually, till the lung is sufficiently collapsed, and completed on the day of operation, the patient being thus slowly accustomed to using only one lung and being spared any sudden collapse. Now the pleural cavity can be opened as safely as a peritoneal cavity, due care being taken in the technique of the operation.

As regards the operation itself I suggest, first, a flap comprising all the tissues down to the costal surface of the costal pleura, and this being well demonstrated and all hæmorrhage

checked can be opened either by a small flap or by incision, semilunar or straight. The affected lung is now seized with forceps and drawn out and excised. The stitches necessary for this may be done as cobblers' double stitch. The pleura is now sewn up after the lung is replaced, the flap adjusted, and the operation completed; but before the costal pleura is sewn up the chest should be again filled with the medium.

If this medium is not absorbed and the lung repaired in due time aspiration might be performed. By this method even one whole lobe might be bodily removed after ligaturing its base and if the side was not subsequently filled with lung (other lobe or lobes and also by expansion of the lung of the other side), even after aspiration, thoracoplasty might be performed and the side of the chest adjusted to the size of the lung left.

By this method, not only the lungs, but also other thoracic viscera might be dealt with.

I am, Sirs, yours faithfully,

Newcastle-on-Tyne, July 6th. GEORGE LANE.

"LOSS OF MEMORY AND OF SENSE OF PERSONAL IDENTITY."

To the Editors of THE LANCET.

SIRS,—Your annotation on "Loss of Memory and of Sense of Personal Identity" in THE LANCET of June 9th, p. 1670, reminds me of a case which may be of interest in connexion with this subject.

Two or three seasons back, towards the end of cub-hunting and just before regular hunting commenced, a gentleman, a tall, strongly-built young fellow about 25 years of age, "trained on" with his horse from a station in the Midlands to another some 30 miles distant to meet the hounds. He made an early start—at that time of year hounds meet early—and possibly did not get much of a breakfast before starting. He rode through one run, not a particularly severe one. Then, as hounds were moving off to draw for another fox he found that he was lost. He had no recollection as to who he was, of where he had started from in the morning, of where he was, or of what hounds he was out with.

At a loss to know what to do, he rode up to another man out and asked him if he would tell him what pack they were out with. By one of those extraordinary coincidences which in a novel would be voted very far-fetched, the man he rode up to to inquire of was his own cousin. More remarkable was the fact that neither knew that the other was out; that they resided more than a hundred miles apart, and that while the patient had come by a train to the meet from some 30 miles west, his cousin had come the day before from a hundred miles east, and was out from the house of his host. The cousin, also, though recognising the patient at a glance, did not know where he was at the time staying. He, the cousin, in his turn, called to his aid his host and they put the patient in charge of a second horseman, directing him to ride close to the patient and not to leave him till he had deposited him at my house.

On my return from a journey I found the patient on a sofa in my consulting-room covered with blankets and my wife administering hot tea. He was very cold, his most prominent symptom being weak heart action—in fact, the usual symptoms of concussion and shock after a heavy fall. I had him put to bed and treated on general principles; and in the course of 24 hours his memory returned. Then I found that he had not long returned from Buluwayo and the Matabele rebellion, where he had been "just to see what was going on." He had suffered severely from malaria and it was pretty plain that the malaria was then by no means all out of his system. A couple of days before, riding a young horse, hunting, he had had one or two falls, but nothing to stop him. His heart action for the next 48 hours remained weak and unsatisfactory. I advised him that hunting was, for the present, absolutely out of the question for him. The chances of a recurrence of the symptoms, or of exhaustion from heart fatigue in a lonely place—where he might possibly lie in a state of exhaustion for hours before he was discovered—appeared to me to be altogether too great a risk to run. It was not a very pleasing opinion to him as he had just got a stud of horses together to begin the season with. However, he acted upon it and sent his horses up for sale. He made a complete recovery and has hunted regularly for the last two seasons and, so far as I know, has never had any return of the symptoms.

I am, Sirs, yours faithfully,

Stratford-on-Avon, June 14th, 1900. HARRY LUPTON.

"SIR W. FOSTER AND THE MEDICAL ARRANGEMENTS AT THE SEAT OF WAR."

To the Editors of THE LANCET.

SIRS,—In an annotation in your issue of July 7th you asked that I should furnish a reference to a statement by the late Professor De Chaumont which you have been unable to verify. If you will refer to the seventh edition of Parkes's Hygiene, edited by Professor De Chaumont, you will find on page 664 the following:—

"*Amount of hospital accommodation.*—This must not be less than 25 per cent. of the force with reserve tents in rear in case of need."

With reference to the mortality of 21 per cent. in the cases of typhoid fever in South Africa I said in the debate that if that represented the death-rate under the horrible conditions described by Mr. Burdett-Coutts, I believed that with proper care and nursing it might have been reduced to 12 per cent. I see no reason to alter that opinion. On the contrary, I am confirmed in it by the mortality of 7·38 per cent. recorded by Professor Victor C. Vaughan of the University of Michigan for the typhoid fever in camp in the United States army during the recent war and Brandt's mortality of 7·8 per cent. calculated on 19,017 cases.

I am, Sirs, yours faithfully,

House of Commons, July 11th, 1900. WALTER FOSTER.

*** We are obliged to Sir Walter Foster for so courteously giving the reference to Parke's Hygiene, 7th edition. To provide hospital accommodation in the proportion of 25 per cent. for an army such as ours in South Africa would mean at least 50,000 beds, a provision which it seems to us would seriously interfere with the mobility of the troops as a fighting force. Professor Victor C. Vaughan's figures are, we understand, those of cases treated in a stationary camp in their own country and not at the seat of war; while Brandt's figures refer, we believe, to cases which had not been exposed at all to the conditions of war. Will Sir W. Foster be good enough to compare the enteric fever statistics of the army in South Africa with those of the London Fever Hospital as given by Murchison, or with those of the Metropolitan Asylums Board for ages corresponding to those of soldiers, say from 20 to 30 years?—ED. L.

SICK AND WOUNDED OFFICERS' SURGICAL AND MEDICAL AID COMMITTEE.

To the Editors of THE LANCET.

SIRS,—The outbreak of hostilities in China and on the West Coast of Africa must, it is feared, result in the early arrival of many naval, military, and other officers invalided home from the operations now being carried on in those quarters. Would you kindly allow me to make known through your columns that this Committee, originally formed to provide medical and surgical aid for those who have suffered in South Africa, will be equally prepared to render assistance to officers returning home from these other theatres of war. Applications should be addressed to the Hon. Arthur Brodrick, at Hampden House.

I am, Sirs, yours faithfully,

ABERCORN, President.

Hampden House, Green-street, W., July 11th, 1900.

CIVIL SURGEONS ON THE WEST COAST OF AFRICA.

To the Editors of THE LANCET.

SIRS,—In both THE LANCET and the *British Medical Journal* the Colonial Office is advertising for temporary civilian medical officers for an expedition—presumably military—to Coomassie. The emoluments offered for this service are £30 a month for a six months' engagement, free rations, a gratuity of ten days' pay for *every complete month served on the coast*—time occupied on the passage out and

home apparently not counting towards the gratuity—and a free passage out and home. When these terms are compared with the War Office remuneration to civilian surgeons in South Africa—viz., £1 a day, 3*s.* a day allowance, free rations, a horse and servant, two months' pay as a gratuity and a free passage out and home—and when one considers that the climate of this part of the West Coast is the most deadly along that most deadly littoral, while that of South Africa is, under ordinary conditions, perhaps the best in the world, the total inadequacy of the pay offered for the temporary but arduous and deadly work demanded is at once apparent. If there is any sliding scale of remuneration based on the risks involved and the nature of the work entailed, then the pay and allowances of these West Coast officers should be at least double those of their South African *confrères*. Men must be down on their luck indeed—professionally, socially, and financially—to accept this work at the rate offered, and I can hardly congratulate the Colonial Office on the type of medical man they are likely to obtain by their munificent offer.

I am, Sirs, yours faithfully,

July 10th, 1900. CANTAB.

"THE NATIONALISATION OF TRINITY COLLEGE, DUBLIN."

To the Editors of THE LANCET.

SIRS,—I do not think that a controversy can be profitably pursued on the lines of the letter of your correspondent "Irish Graduate." He asks me to say, "Is Trinity College to be the only place of collegiate education for young Irishmen?" To which I reply that I have not heard that anyone outside the walls of a lunatic asylum has suggested anything of the sort. My proposition is that the University of Dublin and its College should be absolutely free from even the suspicion of sectarian bias and should open their arms to alumni and intending graduates in arts coming from educational institutions of any religious type and that the education of those intending graduates should be left unrestrained to the respective institutions. Provision already exists, I believe, for the divinity education of these graduates in every religious community outside Trinity College, and I propose, simply, that that faculty shall share with others the position apart from Trinity which they occupy.

Your correspondent takes his stand upon the numerical predominance of Roman Catholics in Ireland, but I differ from him in the creed that university graduation or collegiate education should depend altogether on numerical preponderance. People who argue in this way must, to be consistent, object *in toto* to the education, on the lines of European civilisation, of any individual resident in an Eastern country like India, where the non-European community is enormously preponderant. Education ought to be cosmopolitan. I have already said that everyone knows that neither the Roman Catholic priesthood nor the authorities of Dublin University will permit desectarian education if they can help it. The whole question can, however, be settled by turning a deaf ear to the selfishly unreasonable demands of the priesthood and by peremptory desectarianism of Trinity College, and a Government endowed with a backbone could do it without trouble, but our present rulers are too busily employed in trying to catch the votes of the Nationalist party in anticipation of the general election to think much about Irish middle-class education.

I am, Sirs, yours faithfully,

A.M., M.D. DUB. UNIVERSITY.

ERRATUM.—In a letter headed "The Nationalisation of Trinity College, Dublin," which appeared in THE LANCET of July 7th, p. 50, the following correction should be made. Col. 2, par. 4, line 3: "A truly national university must be ....." should read, "A truly national university must *not* be ....."

LUNACY IN SOMERSET.—At a meeting of the Somerset County Council held on July 2nd it was reported that there were at Wells Asylum 339 male and 502 female inmates and at Cotford Asylum 195 male and 270 female inmates, making an aggregate total of 1306. For the corresponding quarter of 1899 there were 1284 patients, 532 males and 752 females.

PLAGUE IN AUSTRALIA.

(FROM A SPECIAL CORRESPONDENT.)

THE returns of plague in Sydney for the week ending May 26th are as follows: remaining at the beginning of the week, 100; admitted, seven; discharged, 19; died, six; remaining at the end of the week, 82. The totals up to the end of the week are as follows: cases, 247; deaths, 89; discharged, 76; "contacts," 1407; "contacts" remaining, 115; cases among "contacts," seven.

The number of new cases during this week has been lower than in any week since that ending March 10th. The following table shows the weekly returns from the beginning:—

Week ending	Cases.	Week ending	Cases.
Jan. 27th	1	March 31st	23
Feb. 3rd	0	April 7th	29
,, 10th	0	,, 14th	29
,, 17th	0	,, 21st	16
,, 24th	2	,, 28th	27
March 3rd	2	May 5th	38
,, 10th	5	,, 12th	23
,, 17th	12	,, 19th	23
,, 24th	10	,, 26th	"

This sudden and great reduction is not as easily accounted for as an equivalent rise would have been.

On May 1st, 2nd, 11th, 13th, and 21st cases of plague occurred at Manly. This town, which had remained uninfected, is situated at the northerly end of the fiord which forms the outer harbour and is about seven miles from Sydney. It can be reached by a journey of 13 miles by road which involves crossing water by two horse ferries; but communication is usually made by steamer. It is a favourite place of residence for people engaged during the day in Sydney and considerable numbers pass to and fro regularly; on Saturdays, Sundays, and other holidays many thousands of people resort there. The only feature which the four later cases had in common was their occupation at one of the wharves. The first patient was a shopkeeper in the town who had visited two warehouses in the neighbourhood of the infected wharves at Sydney three days before he fell ill; it was supposed at first, therefore, that he had been infected there, and it seems certain that his sole connexion with the Manly wharf consisted in his traversing it as a passenger. The ferry-boats carried rats and it was thought that some must have got ashore notwithstanding the precautions taken. Accordingly, as soon as the first case occurred steps were taken to trap and examine the rats on shore, and especially those about the wharf and the street nearest to it. Poison had long been laid for them. Many specimens, both alive and dead, were submitted and examined; nearly all had enlarged livers and spleens, but these signs could not be connected with plague after very careful examination, and were provisionally ascribed to phosphorous poisoning. The search was continued, it being assumed that where several cases of plague arise plague-rats must exist; and long after it began to seem likely it would prove interminable one putrid carcass was met with which afforded probable but inconclusive evidence of plague. Shortly afterwards a rat was sent in which furnished unmistakeable evidence of plague. Probably the trappers had worked too close to the wharf from which most of the rats had disappeared before they began their work.

May 28th.

The returns of plague in Sydney for the week ending June 2nd are as follows: remaining at the beginning of the week, 82; admitted, 17; discharged, eight; died, three; remaining at the end of the week, 88. The totals up to the end of the week are as follows: cases, 264; deaths, 92; discharges, 84; "contacts," 1502; "contacts" remaining, 122; cases among "contacts," seven. Since the Government offered a capitation fee for rats taken to appointed receivers nearly 25,000 have been paid for; the number for May was above 19,000. Most of them were taken in parts of the city and its neighbourhood which are known to carry infected rats, but a small proportion from more distant areas. To those who are aware of the multitudes in which rats swarm in and around Sydney these totals appear insignificant. However, it must not be forgotten that there was a time when the public had not been aroused to the necessity for killing rats

and that it continued long after the epidemic in man had become alarming.

A further supply of four litres of Yersin-Roux serum has arrived from Paris. At the hospital the opinion so far formed seems to be that very large quantities are necessary to produce decisive results; or, rather, that much larger quantities than have hitherto been used there are required. Still, the experience has been short, yet it is thought that intravenous injections do not produce a more striking effect than subcutaneous injections of twice the quantity—that is, of 40 c.c., reference being had merely to the immediate and not to the ultimate effect. Injection into the veins is made with a short needle; with a little practice this appears to be easy and the risk of penetrating both walls of the vein to be slight. At first the vein was dissected out; it is well that this tedious and rather delicate operation should be unnecessary.

June 5th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Decline of the Plague.—More Patients for Paris.—The Water-supply of Bombay.

NOT since the epidemic broke out in 1896 has such a low death-rate from plague been recorded as for the past week. The mortality throughout India has declined to 319, as compared with 417 deaths for the week previous. Bombay city returns 97 deaths notwithstanding its rate of mortality is 67 per 1000 per annum—a total mortality of 1183 when it ought to be under 600. Calcutta returns 125 and these are almost entirely accounted for by the excess mortality. The figures for Calcutta prove for themselves that very few cases of plague occur in the city which do not get known to the authorities either before or after death. This accuracy in the returns is due to the system of inquiry and registration adopted. The deaths are carefully recorded every day at the burning ghats and burial-grounds. A list of deaths is made out and inquiry is made by medical officers into the circumstances of each death. If the clinical history obtained points to plague the death is returned accordingly. Constant inquiry and investigation in every part of the city bring to light a certain proportion—roughly, say, one-third—of living cases. Disinfection follows every doubtful death. This method has proved itself so accurate that taken over a long period the amount of plague recorded and the excess mortality balance each other. There has been no other epidemic disease to complicate the system and in view of the secrecy adopted by the natives it seems the only practicable method of procedure. Notwithstanding the satisfactory decline cases still continue to be returned from widely scattered districts. Bengal gives 37, the Bombay Presidency 32, Karachi 12, and Aden five.

I regret to hear that no less than ten privates of the 1st Royal Scots Fusiliers and three drivers and gunners of the 24th and 52nd Field Batteries have sailed for treatment at the Pasteur Institute at Paris on account of bites from animals suspected to be suffering from rabies.

After a heavy fall of rain with storms in various places the weather throughout India has again been unpropitious and the real monsoon can hardly be said to have arrived. The south-west current is reported to be weak and unsteady and the welcome rainfall on the west coast of the peninsula is declining.

I have from time to time had occasion to report upon the water-supply of Bombay. Generally of abundance, the quantity has been seriously affected by last year's drought, and while hitherto considered unquestionable in quality it is now found to require filtration. The plan recommended is to construct covered filters outside the reservoirs. Though this will prove more costly than placing them inside the distributing basins there would be greater facility in looking after and maintaining the filters as the catchment basins are some distance from the city. The municipal authorities are justly proud of the water-supply and there is little doubt that with the precaution of properly constructed and well-maintained filters Bombay will be supplied with water second to none in the dependency. As I pointed out in a previous letter, there is some evidence that the amount of enlarged spleens (as representing the malarial condition of a place) is influenced considerably for the better by filtration of the water-supply. An explanation of this is still wanting.

June 24th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Housing Problem.

MANCHESTER and Salford are each confronted with the perplexing and, so far as can be seen at present, almost insoluble problem of how to provide decent and healthy house accommodation for those who can only afford to pay 4*s.* or perhaps 5*s.* a week rental. It is forced on them by the necessity there is for clearing away insanitary dwellings—which unhappily are just those most apt to be overcrowded—if the public health is to be maintained or improved. For the last 15 years the corporation of Manchester have been gradually doing away with back-to-back houses. They are ill-ventilated, and the closets are oftener bad than not, sometimes opening on to the street, sometimes being built into the side of the house, with perhaps walls soaked and leaking into a living room and with a bedroom over. To live healthily under conditions even somewhat better than these would be difficult for the most cleanly, but, as a rule, such dwellings are occupied by the lowest of the people who by their own careless and filthy habits go far towards securing a heavy death-rate. The Sanitary Committee have during the last 15 years closed 3522 insanitary houses, but the occupants have been re-housed by the corporation, generally, however, having had to pay a higher rent. In many cases, no doubt, the original tenants have gone elsewhere or crowded into houses already tenanted, and their places have been filled by a somewhat higher class of working people. This question was discussed at the last meeting of the City Council, and the proposed closing of certain houses in Hulme by the Sanitary Committee was referred back. The mover of the amendment said that the work of demolition proceeded more rapidly than the provision of new dwellings and hence overcrowding prevailed. Within a recent period he stated that out of 583 houses closed in Hulme 389 had been demolished and over 1500 people had had to go into houses where families were already in occupation, and that of the 13,000 houses built in Manchester during the past 10 years none were to be let at 4*s.* a week, which was the highest rent the people he referred to could pay, though they were for the most part honest members of the labouring classes. With the increasing value of town sites it seems that four-roomed cottages cannot be built to let at 4*s.* a week without loss. The speaker advocated the provision of what are called "barrack dwellings." Those that have been built in Manchester are tenanted, but it is a complaint that the rooms are too small, which might be avoided in the future. One of the objections to these buildings of many storeys is, not that the parents have to go up and down so many steps, but that it increases the difficulty of the children getting proper air and exercise. The same problem troubles our neighbours of Salford. In course of time some hundreds of dwellings have been demolished, and builders are now beginning to use up the old bricks to provide those displaced with new houses. But the old rent for the four-roomed houses was 3*s.* 6*d.*, while that for their less roomy and less commodious successors will be 6*s.* 6*d.* The addition of 2*s.* or 3*s.* a week to the rent is a serious matter to a woman, say, who only has 12*s.* or 14*s.* a week for household expenses. There is no great wonder that our town-bred population grows up weakly and stunted and that the "corner boys" and "hooligans" of our streets excite pity as specimens of a decaying race and disgust as an illustration of the results of our methods of bringing up our boys. It is not surprising that scarcely one-half of our town-bred young men come up to the low standard of physique required in our recruits. Nor is it likely to alter for the better while life in the slums is what it is and while life in the barrack flats must be too confined for the healthy growth and development of the coming race. Easy and cheap transport to the outskirts of our towns would do away to a great extent with the need for the working classes to live close to their work. Houses would be cheaper than in town and the children would grow up under more natural and healthy conditions than at present, much to their advantage in mind and body. In these days, when peace and goodwill among the nations seem farther away than ever, one cannot but view with concern the rapid physical, and, one fears, moral degeneracy of our town population.

The late Dr. D. J. Leech.

Manchester has suffered stroke upon stroke of late from the hand of death, and the medical profession is left much the poorer by the loss of a physician so able, so conscientious, and so universally respected as Dr. Leech. His painful illness was borne with fortitude and resignation touching to witness in one whom we had known for years as an almost perfect illustration of strength and energy, of the sound mind in a sound body. It is remarkable that three, if not four, members of the infirmary staff should have fallen victims one after the other to some form of the same disease.

July 10th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Public Health Congress, Aberdeen.

THE official programme now issued shows that the proceedings of the Congress of Public Health to be held at Aberdeen will last from August 2nd to 7th inclusive. The patron of the Institute (the Royal Institute of Public Health) is Her Majesty the Queen. Lord Balfour of Burleigh, Secretary for Scotland, is patron of the Congress and Lord Aberdeen is the president, while Lord Provost Fleming (Aberdeen) is the honorary president. Professor W. R. Smith, M.D. Aberd., D.Sc., F.R.S. Edin. (London), is the president of the Institute and Mr. Henry C. Jones (197, High Holborn, London, W.C.), is the honorary secretary; Professor Matthew Hay, M.D. (Aberdeen), and Mr. Kenneth Cameron (chief sanitary inspector, Aberdeen), are the honorary secretaries of the Congress. The various sectional presidents are as follows:—Preventive Medicine and Vital Statistics section: Dr. W. J. Simpson, Professor of Hygiene, King's College, London. Bacteriology and Comparative Pathology section: Dr. D. J. Hamilton, Professor of Pathology, University of Aberdeen. Chemistry and Meteorology section: Dr. C. Hunter Stewart, Professor of Public Health, University of Edinburgh. Architecture and Engineering section: Mr. John Honeyman, R.S.A., F.R.I.B.A., architect, Glasgow. Municipal and Parliamentary Hygiene section: Dr. Robert Farquharson, M.P. The various conferences will meet in Marischal College, commencing on Monday, August 6th, at 11 A.M. The president of the Medical Officers of Health Conference will be Dr. John C. McVail, medical officer of the counties of Stirling and Dumbarton; of the Sanitary Inspectors' Conference, Mr. Peter Fyfe, F.R.S. Edin., chief sanitary inspector of Glasgow; of the Veterinary Surgeons' Conference, Mr. W. Williams, F.R.C.V.S., principal of the New Veterinary College, Edinburgh.

The Illness of Professor Ogston of Aberdeen University.

A telegram from South Africa recently received in Aberdeen stated that Professor Ogston's illness was enteric fever, that he was still a patient in hospital at Bloemfontein, but was progressing favourably.

July 10th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Principal Medical Officer in Ireland.

DURING the absence on leave extending to August 4th of the Principal Medical Officer in Ireland his duties will be performed by Lieutenant-Colonel F. G. Adye-Curran, Royal Army Medical Corps.

The Hospital at Bloemfontein.

In connexion with the treatment of the sick and wounded at Bloemfontein it is interesting to note that the Raadzaal (Parliament House) there has been converted into a hospital and is under the charge of Colonel W. W. Kenny, R.A.M.C., well known in Dublin. Under him are Surgeon Henry Moore of the City of Dublin Hospital (a volunteer), Lieutenant Archer, R.A.M.C. (also from Ireland), with Surgeon Williams of London. Eight nursing sisters are attached to the hospital in addition to the usual staff of orderlies.

Military Manœuvres and the Belfast Water-supply.

At a meeting of the Belfast Water Commissioners on July 5th attention was publicly called by one of the members to the statement that part of the Mourne range of mountains had been scheduled as a portion of the area over which the summer military manœuvres are to be conducted, and that this part so specified actually included the catchment area purchased by the Belfast Water Commissioners. The Water Commissioners have (or will shortly have) paid a million of money in connexion with this scheme, and in order to ensure the purity of their catchment area they had bought it up, minerals and all. Very naturally the Water Commissioners, seeing what has taken place recently in Africa, protest very strongly against any risk of their catchment area being in any way interfered with owing to the great risk of the sanitary conditions accompanying an army in the field, and they call upon the Belfast Members of Parliament and the city corporation to use their influence to prevent such an occurrence taking place as their catchment area being made a camping ground for military manœuvres. Some years ago, the Commissioners having restrained the colonel of a regiment stationed in Belfast from washing his dogs in one of their reservoirs, that military authority in martial dudgeon refused to allow the regimental band to play any more in the pleasure grounds of the waterworks, whereupon the Commissioners were much blamed by the Press for needlessly interfering with the recreations of the people. The Press, however, it is hoped now will uphold the Commissioners in their rightful efforts to prevent defilement of their catchment area at the Mourne Mountains.

North of Ireland Branch of the British Medical Association.

The twenty-second annual meeting of the North of Ireland Branch of the British Medical Association was held in the town-hall, Portrush, on July 5th. From the annual reports it appears that the society is in a most flourishing condition, there being 271 members, of whom 153 are country and 118 from Belfast. Financially there is a balance in the treasurer's hands of £13 18*s.* 9½*d.* The following office-bearers for 1900–1901 were then elected:—President: Professor Byers. Vice-Presidents: Dr. J. S. Darling (Lurgan) and Professor Lindsay. Secretary: Dr. W. Calwell. Treasurer: Dr. George Gray (Newcastle). Members of Council—Country: Dr. E. C. Thompson (Omagh), Dr. J. Stuart (Ballymena), Dr. J. C. Martin (Portrush), Dr. J. C. Hall (Monaghan), Mr. St. George (Fishburn), Dr. Agnew (Lurgan), Mr. R. Gray (Armagh), and Dr. D. Gaussen (Dunmurry). Belfast members: Dr. John Campbell, Dr. A. Dempsey, Professor Sinclair, Dr. M'Kisack, Professor Whitla, Dr. McCaw, Dr. E. C. Bigger, and Dr. A. B. Mitchell. The President (Dr. J. C. Martin) read an interesting paper on Portrush from a Medical Point of View.

The Samaritan Hospital, Belfast.

A summer fête and fancy fair was held at Norwood Tower, Belfast (kindly lent by the ladies and gentlemen of the Henderson family who placed their beautiful grounds at the disposal of the promoters of the undertaking), on July 6th and 7th. The object was to clear off a debt from the Samaritan Hospital. Dr. St. Clair Boyd, one of the surgeons to the hospital, has offered in the most generous manner to be responsible for any deficiency in case the debt is not cleared off. A sum of about £300 has been raised.

July 10th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Last Lecture of Professor Potain.

ON Tuesday, July 3rd, at 10 A.M., Professor Potain in the theatre of the Charity Hospital gave his last lecture upon Clinical Medicine. The rules as to age limit are inflexible. Hospital physicians must retire at the age of 65 years and hospital surgeons at 62. If, however, the physician is also professor in a clinic he may hold his appointment up to the age of 70 years, and if he is a member of the institute he may continue until he reaches the age of 75 years. Professor Potain, who is 75 years of age, has thus gone to the extreme limit which his accumulated offices allow, and he resigns his chair while still in full possession of his faculties and enriched by his long experience. Few medical careers have been so worthy as that of the venerable professor. A consummate clinician whose labours on diseases of the heart and lungs have gained him a world-wide reputation; an exemplary professor who for 30 years without a break took up his parable before an audience composed of listeners of every

nationality very many of whom were past masters in their art; a physician who for 40 years arrived at 8 A.M. to the minute in his wards when he saw all his poor patients whose claims were never neglected for those of the rich and mighty; a public man whose retirement meets with universal regret and who is everywhere respected; in addition to all this he is absolutely upright and kind-hearted to a degree which no one who knows him can forget. Overwhelmed as he was by requests for a consultation he never would raise his fees—a fact with which his younger colleagues would sometimes reproach him—but whoever asked for his opinion, even among the humblest, was sure of getting it, and that, too, very often without any fee. These, then, are the reasons why throughout France no physician is regarded with such practically filial respect as "Father Potain," to give him the name by which he is generally known. When, therefore, the day dawned upon which one so loved had to resign his chair and his hospital work it is easy to conceive the cruel wrench which the parting would give him. Such a feeling was widespread, and by no concerted action but on their own initiative all his pupils and many of his friends attended his last lecture. There in that throng, so evidently permeated by an emotion no less marked because restrained, were Professor Bouchard, Professor Dieulafoy, Professor Guyon, Professor Brissaud, Déjerine, Gaucher, Oulmont, Gourand, Moutard-Martin, Duflocq, Vaquez, Marey, Teissier, and many more old pupils who have now become teachers. Professor Potain began his lecture just in his usual calm way and pointed out the remarkable harmony which existed between the results of a radiographic examination of the heart and the results obtained by stethoscopy—it seemed as if he wished his last words as professor to be concerned with his favourite study of the heart, by doing homage to the modern discovery, owing to which that study had entered on a new road. Eleven o'clock struck, the master stopped, and in the midst of a dead silence announced that he had given his last lecture. "I wish," he continued, "to say a word or two in memory of Corvisart who, 100 years ago in this very theatre, created the first course of clinical medicine in France. I wish to thank my colleagues, my pupils, my friends, whom——" His voice failed and he stopped with his eyes full of tears. Thunders of applause burst through the theatre, during which his pupils rushed towards him and escorted him to the door. There the Professor fell into the arms of his old pupil Dieulafoy, who warmly embraced him. He then went up the staircase, which was lined with old pupils and friends, whom he saluted and all of whom were visibly moved. Then slowly and sadly crossing the quadrangle, he left the hospital for the last time.

Definite Lesions in Prehistoric Bones.

M. Zambaco of Constantinople recently showed before the Academy of Medicine a series of photographs of human bones collected in Upper Egypt and dating back some 8000 years. Alterations of a destructive or hypertrophic nature, such as suppurative osteitis, exostoses, eburnated surfaces, and the like were evident upon the bones of the skull, the limbs, and the vertebral column. Some of these M. Zambaco considered were due to syphilis and others to tuberculosis. M. Fournier said that he did not consider that the lesions of which M. Zambaco had shown photographs gave any definite evidence of having been caused by syphilis. It is next door to impossible to affirm the existence of syphilis simply from the alterations exhibited by the bones, for a variety of diseases give rise to alterations in the bones exactly similar to those produced by syphilis. Not only do ordinary injuries give rise to exostoses exactly comparable to those produced by syphilis, but varicose ulcers give rise to hyperostosis of the tibia at the border of the ulcer which differs in no way from syphilitic periostitis. M. Fournier, therefore, was of opinion that a simple inspection of a bony lesion was not enough to enable the observer to determine its origin.

July 10th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

Tuberculosis in Rome.

AT a recent meeting of the Società Lancisiana di Roma Professor T. Gualdi, chief medical officer of the Bureau of Hygiene, gave some interesting particulars regarding tuberculosis in Rome. While, he said, the population of the city had increased from 350,000 in 1885 to over 508,000 in 1899 the number of cases of tuberculosis had remained about the same, and it might therefore be inferred that there had occurred a relative diminution in the prevalence of the disease. But even if the proportion had remained the same there would still have been cause for satisfaction, because as the population increased so did the sources of contagion. Pulmonary tuberculosis, which on account of the greater ease of diagnosis afforded a better guide than other forms, accounted for over 900 deaths out of a total for all forms of 1500. A diminution had taken place in the number of abdominal, meningeal, glandular, and miliary cases, which (except the last) were the usual index of infection by the digestive tract. In regard to the morbidity there was little to guide one since the hospitals reported only the gravest cases. The number of cases of pulmonary tuberculosis might, however, be put down as being at least three times as great as the number of deaths—in other words, it might be said that every year there were 3000 phthisical subjects in Rome. A good deal had been done in the direction of prophylaxis, but much remained to be done. Tuberculosis of animal origin had been reduced to a minimum. No tuberculous meat was eaten and milk no longer presented serious dangers. Santori had found bacilli constantly present in the sediment of the milk supplied in Rome which resisted acids after staining with Ziehl's solution and yet were not tubercle bacilli. These were constantly present in the normal fæces of the cows. But no bacilli capable of causing infection were found. The hygienic condition of the dairies had improved immensely. The use of tuberculin had become general and gave splendid results. On notice being given by the authorities of the slaughterhouse of any cow with tubercle the cows of the dairy from which the animal came were at once tuberculinised. All cows were now so examined once a year. At first there was a great difference between the number of cases in oxen and the number in cows, but now there was the same proportion in both—viz., 6 per cent.—of those slaughtered, and in the greater number the tuberculosis was circumscribed. Since cattle caught the infection from man it was well to keep them out of the city, although this rendered supervision more difficult. In regard to disinfection this had been carried out during the last five years in all houses where death from phthisis had occurred and in the houses of all phthisical patients sent to hospital. Excellent results had been obtained by washing the floors with boiling caustic soda and whitewashing the rooms with lime. All second-hand furniture and carpets sold ought to be disinfected and eventually this would be done. The isolation of patients, Professor Gualdi thought, would not be secured without a vigorous propagation of the doctrine of infection. In the hospitals it was already well carried out and even in tenement houses it began to be practised as its necessity became better understood. In this connexion he dwelt on the importance of early diagnosis. In all public places in Rome placards forbidding spitting on the floors had been put up and spittoons supplied, and the same had been done in the houses of the working-classes. Instructions in the various hygienic measures for preventing the spread of the disease had been issued to the public. Professor Gualdi added that he believed the low relative proportion of cases of tuberculosis in Rome to be due to the backward state of industries, with the developmeet of which an increase in the number of such cases might be expected. In the discussion which followed the reading of Professor Gualdi's paper several speakers, while praising the work already done by the Municipal Bureau of Hygiene, commented on the absence of precautions against infection in the schools, and some advocated a system of medical inspection of the school children for the purpose of eliminating all tuberculous subjects, for whom special permanent schools—sanatorium schools, as suggested by Baginsky at the Congress of Naples—should be established. It was even urged that the Bureau of Hygiene should take up the question of the gratuitous feeding of school children by the Government. One speaker deplored the insanitary condition of the public offices, courts of justice, post offices, &c., and was not surprised that until the authorities provided more efficaciously for the cleanliness of the places immediately under their care there should be a disposition on the part of the public to ridicule the prohibition against spitting. In the course of his reply to these criticisms Professor Gualdi remarked that a great practical difficulty in the way of securing obedience to the injunction against spitting was the

want of a good portable pocket spittoon. The responsibility for the hygiene of public offices lay, he said, not with the municipality, but with the Government. He entered heartily into the scheme of school canteens which had been established in Belgium at trifling cost. He admitted the deficiency of hygienic supervision of the schools, the need of special schools, of sanatorium schools, &c., but the resources of a Municipal Bureau of Hygiene were unequal to the task of carrying out such a vast programme.

The Anti-malarial Campaign.

The anti-malarial campaign in the Agro Romano has now fairly begun, the eight ambulances organised for it by the Red Cross Society having left Rome for their various stations at the end of June. A day or two previously they had been inspected by the President-General of the Society, Conte Taverna, who was accompanied by Conte Della Somaglia, President of the Roman Committee, and by the medical inspector, Professor Postempski. The wagons were constructed at the arsenal of Turin expressly for this service and are made in such a way as to be convertible in time of war into transports for the wounded. Every wagon, in addition to the ambulance stretchers, carries three cases containing surgical instruments, medical appliances, and medicines (compressed and liquid), and a fourth case with miscellaneous stores and a saddle for the use of the medical officer in the event of his services being required at places not accessible by carriage. The *personnel* wear the uniform adopted by the Red Cross Society for Africa—flannel tunic and trousers with helmet and alpine boots for the officers, and linen coat and trousers with helmet for the nursing attendants. The medical officers, of whom there are eight, are armed with revolvers. On July 1st, at daybreak, the ambulances started on their various rounds, and already the first reports of the work done begin to reach the Bureau of Hygiene. For the present, and until the malarial season commences in earnest, this work will be chiefly in the nature of practice, to familiarise the medical officers with each locality and the best way of dealing with its particular needs. Nevertheless, on this the first day of the campaign a large quantity of preventive remedies were distributed and a couple of bad cases of malaria were admitted into the Hospital of Santo Spirito. Even the small experience already gained shows that this crusade against the deadly foe which yearly exacts so heavy a tribute from the fever-stricken peasantry of the Roman Campagna will be the means of relieving much suffering and of saving many lives. To the same humane object the series of experiments which the Society for the Study of Malaria are again inaugurating in Latium for the malarial season now commencing will no doubt likewise contribute. These experiments will be of a similar kind to those carried out last summer along the Mediterranean and Adriatic railways with such encouraging results. Some 26 of the houses of the employés along the same lines of railway, all in localities known to be highly malarious, will be selected, and the doors and windows will be closed with wire gauze to prevent the entrance of anopheles. The men on night duty will wear special coverings for the head and hands to protect them from the bites of mosquitoes, and will have preventive medicines administered to them. Similar measures will be adopted by the Acqua Marcia and the Rome-Tivoli Electric Traction Companies for their stations and workpeople, and an attempt will be made to induce the peasantry in the most malarial zones, such as Cervelletta, Castella di Velletri, the Pontine Marshes, &c., to adopt like precautions, wire gauze for the windows of their houses and huts being supplied to them. The Caetani family have had a moveable shelter constructed furnished with mosquito nets and all the necessary protective paraphernalia, which will be sent with the workpeople to the various places where the mowing, ploughing, and reaping are successively carried on thus to afford them a safe sleeping-place during the night-time. While these experiments are going on in the Agro Romano other series of a similar nature will be prosecuted in the Tuscan Maremma and in the provinces of Salerno and Bari. All the results will be collected and compared in the hope of gaining information and devising practical measures which may prove helpful in protecting the labouring classes against the ravages of malaria.

Small-pox in Piedmont.

There appears to have been no recrudescence of the outbreak of small-pox with which Italy was threatened last April through the landing at Naples of a number of infected persons belonging to a large party of American tourists, but two cases of hæmorrhagic small-pox imported from Toulon and Marseilles are reported at Cuneo in Piedmont. One case has proved fatal and in the other the patient is not expected to recover. Prompt measures were taken to prevent any spread of the infection.

July 3rd.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

The Ice Trust in New York.

MUCH indignation has been aroused among the inhabitants of New York by the action of the trust which controls the sale of ice in the city in raising the price of that indispensable commodity during hot weather to a figure almost prohibitive to the poor. Owing, however, to the stand taken by some of the New York daily journals, notably by the *New York Journal* and by the *World*, the prosecution of this obnoxious scheme has been frustrated, and, furthermore, its promoters and the more influential of the shareholders in the company, among whom were the Mayor of New York and other city officials, have been publicly pilloried and sharply brought to book. If the project had been carried out much suffering would have been entailed on the residents of the poorer districts of New York, where in the summer the heat is often oppressive to a degree and where ice is a necessity for the preservation of food. Dr. Dwight Chapin, writing on the matter in the *New York Medical Record* of June 9th, says:—"It is estimated that there are 146,600 children under the age of three years in the boroughs of Manhattan and Broux, or 6·72 per cent. of the whole population. This immense number subsists principally upon milk. Recent studies show that if cow's milk can be properly cooled it will keep a considerable time and is much better than relying too largely upon superheating. Here is where the subject of ice comes properly under the physician's notice. Any difficulty in the free procuring of ice during the heated months, whether from a natural scarcity of this article or from a cornering of this staple by commercial greed, is a public calamity."

Plague in San Francisco.

The plague in San Francisco, owing doubtless to the vigorous measures taken for its suppression by the United States Marine Hospital Service and by the San Francisco Board of Health, has apparently been, if not completely eradicated, at least kept well under control. Dr. Kinyoun, of the Marine Hospital Service, San Francisco, states that from March 7th to June 2nd there have occurred 11 deaths from plague in San Francisco. In 10 of these the diagnosis has been confirmed by bacteriological examination. There were at the time of the despatch of the report three suspected cases under investigation. In order to prevent dissemination of the disease strict measures of inter-State inspection are in vogue. The Chinese and Japanese object very strongly to the cordon placed around their quarters as well as to the inoculation with Haffkine's serum, to which they are compelled to submit, arguing that they are being subjected to an unfair discrimination. So strong is this feeling among the members of the yellow race in San Francisco that a suit has been brought by them to test the validity of the existing law and to procure an injunction against the local authorities to cause the abandonment of the cordon around the Chinese quarter. Dr. Kinyoun, in his report to Surgeon-General Wyman, says that the local press is still attacking the Board of Health in every way it can, and is fully and cordially supported by one of the mercantile associations of the city. They have issued a circular which is now being scattered broadcast over the city and, I presume, over parts of the United States in which it is stated that the Federal authorities joined with the State and local authorities have stated that no plague exists in San Francisco. Dr. Kinyoun has contradicted this assertion and declared that plague infection does exist in the Chinese quarter and will exist until a strong, determined, and concerted effort is made to eradicate it.

Death of Dr. Paul Gibier.

Dr. Paul Gibier, the head of the Pasteur Institute in the United States, died from injuries received in a runaway accident at Suppern, New York, on June 9th. He was born in France in 1851 and after graduating at the medical side

of the University of Paris, became assistant professor of comparative medicine. In 1885 the French Government sent him to Spain to study the outbreak of cholera there, and in the following year he was sent to the South of France to study the same disease. In 1888 the same Government sent him to Havana to study yellow fever. On his way home he stopped in New York. He returned the next year, 1890, and started the Pasteur Institute in this country, a specialty of which was originally the preventive treatment of hydrophobia.

June 29th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

The Plague.

THE epidemic of bubonic plague would appear to be slowly subsiding in Australia. In New South Wales 248 cases have occurred to date of which 88 proved fatal. In Sydney the disease shows a tendency now to locate itself in the Chinese quarter, in which eight of the more recent cases occurred with seven deaths. Vigorous measures have been taken to improve the sanitary conditions. The Government has taken over the infected wharves and they are in course of demolition, the timber being burned and the accumulated filth under the wharves being removed in punts. Inspection and cleansing of the city and also destruction of rats are still going on. In Melbourne the municipal authorities are being galvanised into activity in the same way. Additional inspectors are being appointed and the scavenging operations are more efficiently conducted. No cases of plague have occurred in Victoria for a period of 11 days and of the nine cases that have occurred (four being in one family) only one (at Geelong) proved fatal and, indeed, was only diagnosed post mortem. As usual doubt has been cast on the diagnosis in all the cases, but its correctness seems to be unquestionable. Several cases have occurred in Brisbane and at Rockhampton in Queensland. Western Australia is declared to be free from cases. Two cases are reported from Adelaide. In many instances it has been impossible to trace the method of contagion, but the observations of the health authorities, so far as they go, support the views of Simond as to the part played by fleas.

Metropolitan Hospitals and their Needs, &c.

Recently a deputation waited on the Colonial Secretary of New South Wales with reference to extending the Prince Alfred Hospital, Sydney. It was stated that for several years the demands for accommodation had increased to such an extent that more beds were urgently required. The hospital had the ground and the plans ready for the erection of two new pavilions providing 120 beds. The administrative arrangements were such as to suffice for working the increased number of beds and the ratio of cost would thus be materially lessened. If the request were not granted patients must be turned away. The institution had been originally built with a view to its enlargement as the population of the city increased, and the time for its enlargement had now arrived. In reply the Minister said that he fully recognised the increasing need for more hospital accommodation. Not only had the population increased but the hospitals were more popular. He fully appreciated the good work which the hospital did and he would seriously consider the matter and bring it before the Cabinet, and probably they would place a sum on the estimates to enable the work to be carried out. The deputation also asked for a further sum of about £5000 to carry out improvements in the existing buildings and to clear off a deficit on the nurses' home. The Minister promised a favourable consideration of this request also. In Melbourne the finances of the leading hospital are in a bad way, chiefly owing to the action of the Government some years ago in reducing its annual grant to the hospital by £2000. The annual expenditure has exceeded the revenue by about that amount ever since, until now the debt of the Melbourne Hospital is £18,000, and the committee has decided that if the income is not increased some of the wards must be closed. An effort has been made to clear off the debt by public subscription, &c. A large bazaar was held which realised £8000, and Mr. G. Iliffe subscribed £1000 on condition that £20,000 were raised by subscriptions of £1000 and £500. Towards this amount £7700 have been given, and it is hoped that the balance will soon be raised. The question of admitting paying patients into public hospitals has also been much discussed of late, both in Sydney and Melbourne. Mr. E. T. Thring of Sydney in his address as retiring President of the New South Wales Branch of the British Medical Association, condemned the practice, asserting that such hospitals entered into unfair competition with strictly private hospitals, and further charged the members of the staff of such institutions with acting unfairly to the general body of practitioners. The *Australasian Medical Gazette* took up the matter and severely denounced the practice, and appealed to the members of the staffs of the hospitals in question to remedy the abuse. In Melbourne the *Argus* newspaper made much the same statement, giving a full account of the methods adopted at all the different hospitals. The authorities at St. Vincent's Hospital in Melbourne made a reply to the effect that as they receive no aid from the Government they are compelled to add to the income received from public subscriptions by taking a limited number of private patients into wards set apart for the purpose, and that the nursing and administrative work being all done gratuitously by the Sisters of Charity they make a considerable profit on the private patients and prevent imposition on both the charity and the profession in many cases.

The Lunatic Asylums in Victoria.

The Melbourne press have been attacking the administration of the Lunacy Department in Victoria, both the *Age* and the *Herald* having published articles on the subject. The main points brought out are—that in proportion to the population there are more lunatics in Victoria than in any other English-speaking country; that there has been a steady decline in the percentage of recoveries among the patients admitted to the asylums—in the early part of the last decade more than half were cured, now less than one-third recover; and that there is no receiving-house where doubtful cases can be kept under observation, and no proper provision for paying patients, private asylums having been abolished by Act of Parliament. The administration defects are all ascribed to the false economy practised by successive Governments. It is also alleged that the medical officers are for the most part incompetent, the inadequate pay and civil service conditions of promotion by seniority failing to attract good men. As usual in newspaper articles of the kind there is a good deal of truth mixed up with a good deal of exaggeration and misstatement in these charges. When the financial depression came on the colony the Lunacy Department, like every other State department, was retrenched and economy was carried to an extent that was unfair to the medical staff and to the patients; and the inadequate pay and difficulties of successful administration do unquestionably prevent the best men in the profession from entering the service. Still there are some very capable and skilled men on the staffs who take the keenest interest in their work and in teaching the students of the medical schools who attend at the metropolitan hospitals for the insane. The report of the Inspector-General for last year will also show a great increase in the proportion of recoveries.

The Victorian Branch of the British Medical Association.

At a meeting of the Goulburn Valley Sub-branch of the Victorian Branch of the British Medical Association, held on May 7th, the following resolution was carried unanimously:—

> Having heard read the evidence in the O'Hara case, we, the members of the Goulburn Valley Sub-branch in regularly notified meeting assembled, unanimously resign from the Victorian Branch (but not from the British Medical Association), as we entirely concur in the action of the late Council.

The Ballarat Sub-branch also passed a resolution approving of the action of the late Council. The South Australian Branch, at a well-attended meeting held on May 31st, unanimously passed the following resolution:—

> The South Australian Branch of the British Medical Associatio sympathise with the late Council of the Victorian Branch of the British Medical Association in their endeavour to uphold the dignity of the profession in the matter of the "Silenette" investigation; and are of the opinion that they could not have acted otherwise than they did in resigning their positions after the insufficient vote of the 21st March, 1900. That our Representative on the General Council, British Medical Association, be requested to bring the decision of this Branch before the said Council.

Carrasquilla's Serum Treatment of Leprosy.

In the *Intercolonial Medical Journal of Australasia* for May is an account of a very exhaustive investigation by

Dr. F. Tidswell of the value of the serum treatment of leprosy devised by Carrasquilla of South America. The mode of preparing the serum is described as are the results of the treatment, which did not accord with the results stated by Carrasquilla. During the treatment tubercles and maculæ remained and increased, anæsthesia and nerve thickening persisted, and alopecia and defects of sight, &c., were not improved. The disease, far from being cured, did not appear to be even ameliorated, and after nine months' persistent trial the patients declined further treatment.

June 1st.

Obituary.

DANIEL JOHN LEECH, M.D., F.R.C.P. LOND, D.SC. VICT.,

PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS IN THE OWENS COLLEGE, MANCHESTER; CONSULTING PHYSICIAN TO THE MANCHESTER ROYAL INFIRMARY; AND REPRESENTATIVE OF VICTORIA UNIVERSITY UPON THE GENERAL MEDICAL COUNCIL.

THE death of Dr. Daniel John Leech, the well-known Professor of Materia Medica in Owens College, Manchester, following close upon the death of Professor Thomas Jones, inflicts a double shock upon medical circles in Manchester. Like that of his colleague Dr. Leech's death was premature, but his friends had known for three months that the end was only a matter of time, as he was suffering from malignant disease of the stomach.

Dr. Leech was born 60 years ago at Urmston, being the second son of the late Mr. Thomas Leech, a medical practitioner in that city, and the younger brother of Sir Bosdin Leech, the ex-Lord Mayor of Manchester. It is interesting to note that Dr. Leech's original family name was Bosdin, for he belonged to a branch of the old Cheshire family of that name which adopted the name of Leech—at least, so it is said—because of the persistence with which its members distinguished themselves in medicine. The late Dr. Leech has added lustre to his medical name. He entered the recently founded Owens College, Manchester, at the early age of 14 years, and six years later, in 1860, he matriculated in the first division at London University. He was already an advanced medical student, wanting only the final examination to qualify him, his medical studies having been pursued in the Manchester School of Medicine and also, as was the habit in those days, as the assistant of a general practitioner in the city. His career as a student was a successful one and was frequently rewarded with prizes. In 1861 he qualified as M.R.C.S. Eng. and L.S.A. In the following year, after a short sojourn in Paris, the anatomical schools of which city were famous in the "sixties" for the excellence of their teaching and the facilities afforded to the students for practical work, he became demonstrator of anatomy in the Manchester Medical School. This post he held for two years, and in 1864 came up to London where he entered his name for classes at St. Mary's Hospital, upon the honorary staff of which were to be found at that time the names of Dr. James Alderson, F.R.S., Dr. Tyler Smith, and Mr. J. Lane, all of whom had a wide reputation. Returning to Manchester he was taken into partnership by the medical practitioner whose assistant he had previously been, and in 1868 he graduated in London University as Bachelor of Medicine, obtaining first-class honours in gynæcology. In 1870 he was appointed physician to the Hulme Dispensary, and three years later he became assistant physician to the Manchester Royal Infirmary, with which institution his name from that day forward was honourably associated. His excellent work both as teacher and clinician met with ready recognition; his grasp of clinical medicine was firm and his power of imparting instruction great, and in particular he interested himself in the study of materia medica and therapeutics, a branch of medicine the growing neglect of which in this country is a matter of some reproach to the medical profession. In 1878 he was appointed co-lecturer, having as his colleague the late Mr. Somers, in materia medica and therapeutics at Owens College, and on the death of Mr. Somers five years later he became sole lecturer, being at the same time appointed professor of materia medica and therapeutics, which post he held till his death. Upon the appointment of Dr. Leech to the chair Owens College possessed no Materia Medica Museum and to supply this want, which he felt to be fatal to good and fruitful teaching, he set himself with zeal. He spared no trouble and no expense (for the calls upon his private purse in behalf of the Materia Medica Museum were not small), and he formed one of the finest museums in the country, attached to which is a department of experimental pharmacology where excellent work has been done under his supervision and where the spirit of his teaching still remains as a stimulus to further exertion in pharmacological research.

If Dr. Leech had contributed nothing to the progress of medicine but his work in organising a Materia Medica Museum for Owens College and in delivering there his admirable scientific discourses upon pharmacology he would have deserved to be ranked among the prominent medical men of our day; but though pharmacology was Dr. Leech's especial bent he did not allow its study to keep him from a wide interpretation of the duties and responsibilities of a physician. In 1875 he was admitted a member of the Royal College of Physicians of London, a year later he took the degree of Doctor of Medicine of London University, and was elected a Fellow of the Royal College of Physicians of London in 1882. Three or four years previously to this he was elected full physician to Manchester Infirmary, which appointment he held for 21 years, only resigning it about a year ago when he was appointed consulting physician. Dr. Leech's career is, however, but half described when we say that he was an excellent hospital physician with a large private practice and was an admirable professor in the University College of Manchester. He had many other interests, and many other duties were laid upon him, and the way in which he discharged them earned him the gratitude of his fellow-citizens. Thirty years ago he became the secretary of the Manchester and Salford Sanitary Association which through Dr. Leech's powerful instrumentality has rendered the city of Manchester incalculable benefits. To it the corporation owe the institution of many wholesome by-laws, while its teachings have assisted the authorities in the most practical manner to prevent the terrible dangers that follow upon the adulteration of food and upon a vitiated milk-supply, while in particular to this association belongs the honour of being the first body vigorously to combat the evils of black smoke. Several of Dr. Leech's reports upon this subject and upon the pollution of rivers were of the greatest value to the community.

Owens College, Manchester, is much beholden to its dead professor. He was a member of the Council and of the Court of Governors and played an important part in the organisation of the medical faculty of Victoria University. When the University was established Dr. Leech was appointed Chairman of Convocation and Representative of the University upon the General Medical Council, and his services in these two capacities the University acknowledged four years ago by granting him the degree of D.Sc.

Among the many complex problems of medicine few are more interesting than those connected with the accurate determination of the methods of action of particular groups of drugs which possess definite chemical affinities, and all pharmacologists owe the late professor of materia medica and therapeutics at Manchester a real debt of gratitude for his earnest endeavours to increase our knowledge in this direction. In 1893 Dr. Leech took as his subject for the Croonian Lectures before the Royal College of Physicians of London the Pharmacological Action and Therapeutic Uses of the Nitrites and Allied Compounds.[1] In tracing the physiological influence of groups of elements, more particularly of the groups formed by oxygen and nitrogen, he gave in the first two lectures a summary of his own work and proved it to be of considerable practical importance as well as most thoroughly and conscientiously executed. He desired his hearers to obtain a more intelligent appreciation of the conditions of efficiency of the nitrites as a group, and with this object he not only detailed his own experiments but reviewed those of Sir T. Lauder Brunton, Professor Cash, Dr. Filehne, Dr. Reichert, and the late Sir B. W. Richardson in a way that was remarkably intelligible considering the difficulty of the subject. In the last two lectures he dealt mainly with the therapeutic value of the remedies falling under these groups and his conclusions were valuable because of the scrupulous way in which they had been arrived at. Many busy practitioners who looked askance

[1] THE LANCET, June 24th (p. 1499) and July 1st (p. 3), 8th (p. 76), 15th (p. 123), and 22nd (p. 177), 1893.

when these lectures were published in our columns at the unfamiliar names of the drugs mentioned perceived the value of Dr. Leech's work when he proceeded to apply his theories to the estimation of the dosage of such therapeutic agents as nitrite of amyl and ethyl to many common conditions and to give his reason for his teachings.

Dr. Leech will nowhere be more missed and regretted than in the General Medical Council, where he represented the Victoria University. He was, in truth, one of the most useful members of the Council. He was elected to it in 1891 and took an active part in various committees. Of late he had been chiefly occupied in the work of the Pharmacopœia Committee, where the practical and scientific knowledge of drugs to which we have just alluded was of the greatest use to the counsels of the body that has charge of the issue of the British Pharmacopœia. On the death of Sir Richard Quain he was made chairman of the committee, and to him is due much of the credit which has been universally given to the work. He did not speak long or frequently in the Council, but whenever he did speak his views carried much weight. He was especially interested in all questions affecting the general practitioner, such as the various Midwives Bills, the abolition of the unqualified assistant, and the institution of a Conciliation Board to attempt to settle some of the points at issue between the medical profession and friendly societies and medical aid associations. He was a member of the first committee on medical aid associations in 1893 and gave the closest attention to the subject. Up to the last his interest in the work of the Council continued, especially in all questions relating to the Pharmacopeia, and he sent to the Council at the May meeting, through Dr. Donald MacAlister, touching expressions of this interest and left to it several valuable works on pharmacy and materia medica.

Dr. Leech took a prominent part in the affairs of the British Medical Association, being joint general secretary with Dr. C. J. Cullingworth and Mr. James Hardie when the Association met at Manchester, President in 1890 of the Lancashire and Cheshire Branch, and President of the Section of Pharmacology when the Association met at Montreal. He was also a ruling spirit and a late President of the Manchester Medical Society and founder of the Manchester Therapeutical Society, a young and earnest scientific body working on the lines of research where he had made himself a pioneer. He was for several years editor of the *Medical Chronicle*, and the pages of our Manchester contemporary contain many contributions from his pen. He was also a magistrate for the city.

We have said enough to show that in Dr. Leech Manchester has lost a citizen and medicine a representative which both must deeply regret. An excellent physician, a sound teacher, and an original worker Dr. Leech joined to his high intellectual qualities a particularly charming nature. He was kind, generous, and fair-minded, prudent in counsel, and while leaning to the weaker side was never afraid to speak his mind. All his work, whether public, medical, or strictly scientific, had one aim—the good of his generation. He bore his last illness with fortitude and leaves behind him many friends to recall his good qualities.

Dr. Leech married the daughter of Mr. Maclaren of Whalley Range, who survives him.

HENRY EWBANK, M.R.C.S. ENG., L.R.C.P. EDIN.

A WIDE circle of friends and acquaintances will hear with deep regret of the death after a long and painful illness of Mr. Henry Ewbank, at his residence, 5, Berkeley-place, Cheltenham. The deceased gentleman was a native of St. Germains, Cornwall, and was only 44 years of age. He received his medical training at University College Hospital, London and he went to Cheltenham some 20 years ago to begin his professional career as junior house surgeon of the General Hospital. His stay there was short but eminently successful. In 1881 he succeeded Dr. Cardew as senior surgeon; and on his resignation in May, 1883, he was presented with a case of instruments by the staff, by whom his departure was generally regretted. He left the hospital to enter into partnership with Dr. Gooding of Cheltenham, with whom he was long and honourably associated. The partnership was dissolved in 1895. For a short interval he practised on his own account; but about two years ago he was joined in partnership by his relative, Mr. C. Ewbank Lansdown. He was formerly honorary surgeon to the Home for Sick Children. Much of his popularity was due to the interest which he took in all forms of outdoor sport and to his genial good comradeship with sportsmen of all classes. In his young days he greatly excelled as a swimmer, and he was at one time looked upon as the leading amateur in the West of England. In fact, he enjoyed the unusual honour of having inflicted defeat on the great Captain Webb himself in a quarter-mile race at Westminster. Nor was that the only occasion on which he met the world-famed swimmer in friendly contest, as he was defeated by the champion in a half-mile race at the Cheltenham Montpelier Baths. For some time he was chairman of the Cheltenham Swimming Club and ably presided over the business meetings and social gatherings. He was a consistent supporter of cricket, football, and similar clubs, and he has done good work on the committee of the Cheltenham Cricket Club, having also from time to time undertaken the captaincy of the second eleven. In 1890 he married Mary Elizabeth, eldest daughter of the late Martin Inett Preston, solicitor, of Nottingham. He leaves a widow and two children.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Fritz Rubenstein of Berlin, who has made a reputation for himself in the domain of surgery and the use of the Roentgen rays as well as by his writings on philosophical and literary topics, has died from the effects of a poisoned wound, at the age of 37 years.—Dr. H. Benedikt, son of the Vienna professor, who has published various researches on radiography.—Dr. F. Nott Otis, formerly Professor of Genito-urinary Diseases in the College of Physicians and Surgeons, New York.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen have passed the Second Examination of the Board in the subjects indicated.

Wednesday, July 4th:

Anatomy and Physiology.—Robert Mackenzie im Thurn and Arthur Hallowes, St. Bartholomew's Hospital; John Speechly Le Fevre, Samuel Smulian, George Delaval Walsh, and George Meredith Sanderson, London Hospital; Reginald Henry Hardwick and Thomas Andrew Chater, St. Thomas's Hospital; James Matthew O'Brien, Geoffry Smyth Oades, and John Bourdas, Charing Cross Hospital; Ernest Harrison Griffin, Cambridge University and Guy's Hospital; Percy Claude Vincent Bent, Herbert Douglas Smart, and Edgar Norman Jupp, Guy's Hospital; George Christian Blake Miéville, University College, London; Bertram Maughan Footner and William Joseph Edward Stuttaford, King's College, London; Frederic Rosenberg Harris and George Rowland Henderson Crozier, St. Mary's Hospital; and Charles Aubrey Godson, Hugh Basil Drake, and Leonard Erasmus Ellis, St. George's Hospital.

13 gentlemen were referred to their professional studies for three months.

Thursday, July 5th:

Anatomy and Physiology.—Bernard Beryl Riviere, Lauriston Leonard Winterbotham, Alan Hargrave Pinder, and Kenelm Digby Bell, St. Bartholomew's Hospital; Harold Harris Elborough Scatliff and Lionel Danyers Bailey, St. George's Hospital; Charles Herbert Romer Coltart, Westminster Hospital; William Percival Hingston and Peter Gifford Foulkes, Middlesex Hospital; Charles Robert Shattock, Frank Percival Hughes, Charles Frederick Fraser, and Francis William Fawssett, Guy's Hospital; George Russell Rew, Cyril Thomas Cheatle, and John Henry Napper, King's College, London; William George Cheatle and Russell Edwards Palmer, St. Mary's Hospital; Austin Clarence Dixon, James Stewart, and Edward John Henry Rudge, London Hospital; Harry Morgan Gilmour and Augustine Henry Hudson, St. Thomas's Hospital; James Vere Arkle, University of New Zealand and St. Thomas's Hospital; and George Archibald Bosson, University College, London.

Anatomy only.—Samuel Goodman, St. Thomas's Hospital.

Physiology only.—Clifford Greville Simms, Middlesex Hospital; Joseph Wilding, St. Bartholomew's Hospital; and Ernest John Hamilton Bowen, University College, Cardiff, and King's College, London.

Eight gentlemen were referred in both subjects, two in Anatomy only and two in Physiology only.

SOCIETY OF APOTHECARIES OF LONDON.—At the Primary Examination held in July the following candidates passed in the subjects indicated:—

PART I.

Biology.—C. H. Osmond, Glasgow.

Chemistry.—A. G. Gamble, Leeds; J. E. Jones, Bristol; and O. F. W. Steele, Birmingham.
Materia Medica and Pharmacy.—B. F. Board, M. Foley, E. M. Handley, C. Kellgren, and A. M. Marval, Royal Free Hospital; J. E. Mondon, Glasgow; O. P. N. Pearn, Westminster Hospital; and E. Renouf, Royal Free Hospital.

PART II.

Anatomy.—J. J. Anning, Leeds; W. H. Bush, Guy's Hospital; D. Cotes-Preedy, Cambridge and St. George's Hospital; W. L. Crabtree, Leeds; J. Cretin, Bristol; I. Griffith, London Hospital; E. W. Hutton, St. Thomas's and Westminster Hospitals; H. A. Parker, St. Thomas's Hospital; W. W. Read, Guy's Hospital; Z. Rowlands and E. Serjeant, Royal Free Hospital; J. P. B. Snell, Middlesex Hospital; A. W. D. Thomson, St. George's Hospital; and E. N. L. Wilson, Royal Free Hospital.
Physiology.—J. J. Anning, Leeds; F. D. S. Barker, Royal Free Hospital; D. Cotes-Preedy, Cambridge and St. George's Hospital; J. Cretin, Bristol; E. W. Hutton, St. Thomas's and Westminster Hospitals; H. Johnson, Guy's Hospital; A. R. McEnnery, Bristol; W. W. Read, Guy's Hospital; Z. Rowlands and E. Serjeant, Royal Free Hospital; J. P. B. Snell, Middlesex Hospital; W. P. Taylor, Sheffield and Bristol; A. W. D. Thomson, St. George's Hospital; and E. N. L. Wilson, Royal Free Hospital.

A DAY OF REST FOR THE METROPOLITAN NURSES.—On Wednesday, June 27th, the nurses of the London hospitals and metropolitan nursing institutions spent a day in the country at Hertingfordbury. Advantage was taken of the occasion to help those who were present to realise in devotional exercise the spiritual character and dignity of the nurse's vocation as an essential part of the Christian ministry. The "Day" commenced with a celebration of the Holy Communion in the parish church. The Very Rev. the Dean of Windsor gave the address, taking for his text, "Rest in the Lord." Evening prayer was said by the rector at 3.30, the dean again giving the address, based upon the Psalmist's words, "Delight thyself in the Lord." Dinner and tea were provided, and by the kindness of the Earl and Countess Cowper the visitors were invited to inspect the picture-gallery at Panshanger.

WEST-LONDON MEDICO-CHIRURGICAL SOCIETY.—The following gentlemen have been elected as officers and members of council for 1900-1901. President: Dr. F. F. Schacht. Vice-Presidents: Dr. Seymour Taylor, Mr. Neville T. Wood, Dr. F. J. McCann, Dr. F. H. Low, Mr. C. Andrews, Dr. J. A. Coutts, Dr. J. Crombie, and Dr. S. A. Bontor. Council: Mr. F. R. Mallard, Mr. F. Savery, Mr. E. Bartlett, Dr. D. R. Pearson, Mr. G. E. Twynam, Mr. H. W. Chambers, Dr. G. D. Robinson, Mr. H. Webb, Dr. T. R. Atkinson, Mr. W. S. Fincham, Dr. A. Baldock, and Mr. M. H. Taylor. Treasurer: Mr. T. Gunton Alderton. Secretaries: Dr. G. P. Shuter and Dr. Leonard Dobson. Librarian: Mr. C. B. Keetley. Editor of Journal: Mr. H. Percy Dunn. Editorial Secretary of Journal: Mr. McAdam Eccles.

EPSOM COLLEGE.—The following are the results of recent examinations for entrance scholarships and exhibitions:—Scholarships and Council Exhibitioners: Elected to Senior Scholarships: A. Master and A. C. C. Parkinson. Elected to Junior Scholarships: C. E. Milner and A. Ll. Jones. Elected to Entrance Scholarships: G. T. Vivian (Messrs. Clarke and Crouch, Seaford), D. Rahilly (Fairleigh School, Weston-super-Mare), E. A. C. Fazan (Rose Hill School, Tunbridge Wells), and E. L. M. Emtage (private tuition). Elected to Council Exhibitions: R. Nankivell and J. H. A. Hynes.

THE WATER-SUPPLY OF BARRY, SOUTH WALES.—Owing to the rapid increase of the population of Barry the local authority last year decided to increase the water-supply by sinking another well at Biglis. The works are nearly completed and will increase the pumping capacity at Biglis from 500,000 gallons of water per day to more than twice that quantity. The cost has been about £6000.

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, EDINBURGH.—At a meeting of the Governing Board of the School of Medicine of the Royal Colleges, Edinburgh, the secretary, Mr. R. N. Ramsay, reported that the number of students attending the school during this session was 1109.

MEDICAL MAGISTRATES.—Mr. J. Whitehead Bentley, L.R.C.P. Edin., M.R.C.S. Eng., of Stockport, and Mr. James Bernard Wall, L.R.C.P., L.R.C.S. Edin., of Coleshill, Warwickshire, have been appointed magistrates for the boroughs of Stockport and Coleshill respectively.

ON July 4th the new wards at the Devonport Workhouse Infirmary, erected at an outlay of £4000, were formally opened.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—We are asked to state that Licentiates of the College who desire to claim the advantage of the concession for the Fellowship, in recognition of the Royal visit, should apply before July 31st, 1900.

MR. WILLIAM H. CORFIELD, M.D. Oxon., F.R.C.P. Lond., Professor of Hygiene and Public Health, University College, London, has been elected a Foreign Corresponding Member of the Royal Academy of Medicine of Belgium.

IN MEMORIAM.—The treasurer of Queen's Hospital, Birmingham, has received a cheque for £1250 from Mrs. Poncia, Gough-road, Edgbaston, for the endowment of a bed in memory of her husband, the late Mr. John Poncia.

MR. PRIESTLEY SMITH, M.R.C.S. Eng., of Birmingham, has been elected as representative of the Faculty of Medicine on the council of the Birmingham University.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Proposed Extension of the Medical Act of 1858.

ON Friday, July 20th, General LAURIE, Member for Pembroke and Haverfordwest, will introduce a Bill into the House of Commons to extend the provisions of the Medical Act of 1858. The Bill is the outcome of the refusal of the War Office to accept the services of Canadian militia medical officers in the field in South Africa. In the first case brought to the knowledge of General Laurie, the surgeon of Montreal General Hospital, who also holds a commission as surgeon in one of the local militia regiments, was refused on the ground that it would be contrary to law to employ in the military service a medical man who was not registered under the Medical Act of 1858. Subsequently the Canadian Government offered a complete field hospital and it was refused on the same ground. General Laurie considers that the remedy for this state of things lies in a recognition in the Medical Acts of schools of medicine throughout the Empire which are recognised by their respective Governments and whose requirements come up to the standard established and maintained by the General Medical Council. This is what he proposes to do in his Bill.

HOUSE OF COMMONS.

TUESDAY, JULY 3RD.

The Inspection of Irish Hospitals.

Mr. PATRICK O'BRIEN asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that union general hospitals and union fever hospitals in Ireland were inspected and reported upon by lay inspectors, and could he state what qualifications these gentlemen possessed for the discharge of this duty; was he aware that the Irish Workhouse Reform Association and the Irish Medical Association recommended that those hospitals should be inspected by professional men; and would he see that effect was given to those recommendations?—Mr. GERALD BALFOUR replied: The inspection of workhouses in Ireland, as in England, is under the general inspectors who report on the state of the buildings, the cleanliness, order, discipline, the keeping of the books, the finance, and the compliance with the general regulations by the several officers in every department, including the hospital wards. It would not be practicable to exclude these wards from the general inspectors' authority, but when any questions as to medical treatment arise, or where any inquiry has to be held wherein medical knowledge is required, a medical inspector makes a special inspection or holds any inquiry on oath that may be necessary. The question of assigning this work to a special medical inspector appointed for the purpose is under consideration.

Hospital Staff at Shorncliffe Camp.

Captain NORTON asked the Under Secretary of State for War if he was aware that at an inquest held on Saturday last at Shorncliffe Camp on Sergeant Wilmshurst, of the Sussex Regiment, it was shown in evidence that there was not a single orderly of the Army Medical Corps in the hospital, and that Wilmshurst, when taken to the hospital in a fit, died before a doctor could be found; and in view of the comments made by the jury at the inquest whether he could say what steps, if any, were now being taken to secure without delay an adequate staff for our military hospitals both at home and abroad.—Mr. WYNDHAM replied: No information has been received in the War Office of this incident, but inquiry will be made. The staff of the hospital consists of a sergeant-major, a sergeant, two corporals, and 14 orderlies of the Army Medical Corps, besides regimental soldiers.

Widal's Method of Diagnosis.

Dr. FARQUHARSON asked the Under Secretary of State for War whether he would state what steps were taken by the War Office to provide means for the application of the serum test (Widal's method) to the diagnosis of doubtful cases of enteric fever in general hospitals in South Africa, whether he was aware that this means of making an early diagnosis was largely used by hospitals and local sanitary authorities,

and whether he would take immediate steps to provide every general hospital in South Africa with the skilled assistance and simple appliances necessary in these cases in which such provision had not yet been made?—Mr. WYNDHAM replied: No special steps have been taken beyond the general training of medical officers in this method of diagnosis. The test is being applied in South Africa and army medical officers are quite capable of carrying it out.

THURSDAY, JULY 5TH.

Volunteer Surgeons in Camp.

Sir HOWARD VINCENT asked the Under Secretary of State for War if a decision had yet been taken to facilitate the attendance of volunteer surgeons in camp and to enable the pay and allowances of one surgeon to be divided according to the attendance their private practice enabled them to give.—Mr. WYNDHAM replied: Yes, sir; the Secretary of State has decided to make this concession to the medical officers of volunteer corps.

Death under Anæsthetics.

Mr. MACALEESE asked the Chief Secretary to the Lord Lieutenant of Ireland whether he could give any particulars to the House regarding the case of a man named George Dover who died at the Belfast Royal Hospital on June 7th under an anæsthetic, and would he explain why no inquest was held in this case to ascertain if the anæsthetic which proved fatal had been properly administered, while on the same day an inquest was held on another hospital case in which the jury returned a verdict of death from natural causes; was he aware that the town clerk of Belfast, at the instance of the Finance Committee of the City Council, asked for an explanation of this matter from the coroner who replied that the only person entitled to demand explanations from him was the Lord Chancellor; and would he take steps to draw the attention of the Lord Chancellor to this case?—Mr. GERALD BALFOUR replied: I understand that the coroner, in the exercise of the discretion vested in him, decided that it was unnecessary to hold an inquest in the case of George Dover, whilst in the second case referred to he found it imperatively necessary to hold an inquest. It is open to any of the parties interested to bring the action of the coroner under the notice of the Lord Chancellor. He is not an officer of the Executive, and the Government see no reason for intervening as suggested in the last paragraph of the question.

Hospital Orderlies in South Africa.

In reply to a question on this subject addressed to him by Sir WALTER FOSTER Mr. WYNDHAM said: The number of hospital orderlies employed in South Africa were as follows:—March 17th, 2936, including 560 St. John Ambulance Brigade; April 21st, 3739, including 766 St. John Ambulance Brigade, 34 Militia Medical Staff Corps, and 361 Volunteers; May 19th, 3943, including 988 St. John Ambulance Brigade, 91 Militia Medical Staff Corps, and 492 Volunteers. This does not include the staff of such hospitals as the Yeomanry Hospital, Portland Hospital, &c., the subordinate male staff of which numbers 519, but of which it is not known how many are employed as orderlies. The returns of medical staff raised locally in addition to the above are not furnished to the War Office, but 1200 stretcher bearers are known to have been raised in Natal, thereby releasing orderlies of the Royal Army Medical Corps for duty in the hospitals.

The Treatment of the Sick and Wounded in South Africa.

Mr. BALFOUR announced that it was proposed to appoint a commission consisting of Dr. Church, President of the Royal College of Physicians of London; Dr. Daniel John Cunningham, Professor of Anatomy and Surgery in Trinity College, Dublin; and Lord Justice Romer, to report on the arrangements for the care and treatment of the sick and wounded during the South African campaign.—Mr. DILLON asked whether the Government would appoint an independent commission to inquire as to the responsibility of the War Office in connexion with the treatment of the sick and wounded in South Africa and into the organisation and present condition of the Army Medical Department, such commission to sit immediately and conduct its inquiry independently of the commission which it is proposed to send to South Africa.—Mr. BALFOUR replied that two independent and simultaneous commissions whose duties would overlap seemed to him to be very objectionable.

Later in the day there was a long debate on the composition of, and the scope of the reference to, the proposed commission. Many members expressed a strong desire to have the terms of reference extended and the number of commissioners enlarged and some took exception to medical men having a preponderating voice in an inquiry where questions of transport and military organisation were so largely involved and in connexion with which there had been an attack upon the Army Medical Department. At the close of the debate Mr. BALFOUR, while insisting on the superiority of the Government proposal and saying that in his opinion the House was wrong, said he must yield to the opinions expressed and do his best to consult with his colleagues as to how they could increase the number of commissioners from three to five. He declined, however, to enlarge the scope of the reference.

FRIDAY, JULY 6TH.

Uncertified Deaths in Scotland.

In Committee of Supply on the Scottish Estimates Mr. WEIR and Sir CHARLES CAMERON called attention to the large number of uncertified deaths in the Highlands and others of the remoter parts of Scotland. The latter suggested that in his return the Registrar-General should record separately the certified and the uncertified deaths, so that it might be seen whether any progress was being made in the matter of certification. He reminded the House that the Select Committee of a few years ago found that in some of the western parts of Scotland 50 per cent. of the deaths were uncertified by a medical man and that in spite of this state of things the recommendations of the Committee had not been carried into effect.—The LORD ADVOCATE, by way of reply, said he would place Sir Charles Cameron's suggestion before the Registrar-General.—Mr. WEIR protested against this reply as altogether inadequate and unsatisfactory. In his own constituency of Ross and Cromarty there were hundreds of uncertified deaths every year—a state of things which he regarded as a public scandal. By way of emphasising his protest Mr. WEIR moved a reduction in the vote under the review.

The Use of Glycerinated Calf Lymph in Scotland.

On the vote for the Local Government Board for Scotland Sir CHARLES CAMERON drew attention to the small proportion of glycerinated calf lymph distributed in Scotland as compared with the proportion distributed in England.—The LORD ADVOCATE replied that up to the present the advantages of the lymph had not been brought home to the people so clearly in Scotland as in England. He was glad, however, to be able to assure the hon. member that the demand for it was steadily increasing, and he thought the hon. member and others interested might feel certain that this steady increase would be maintained.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

ABERCROMBIE, PETER H., M.D., C.M., has been appointed Assistant Surgeon to the Central London Throat and Ear Hospital, Gray's Inn-road, W.C.

ASTIN, WILSON, M.B., C.M. Aberd., has been appointed Medical Officer of Health for the Loughton Urban District.

BARFORD, ARTHUR, M.D., has been appointed Assistant Anæsthetist to the Central London Throat and Ear Hospital, Gray's Inn-road, W.C.

BEAUMONT, A. W., B.A. Camb., M.D. Dubl., has been re-appointed Medical Officer of Health by the East Ham Urban Council.

BELLAMY, J. H., junr., L.R.C.P. Lond., M.R.C.S., has been appointed Senior Resident Medical Officer at the Workhouse by the Sheffield Board of Guardians.

BROWNE, G. H., L.R.C.P. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Blaina Sanitary District of the Tredegar Union.

BURGESS, G., M.B., C.M. Aberd., has been appointed Medical Officer of Health for the Great Driffield Urban Sanitary District, vice R. Wood, resigned.

GOLDSMITH, G. H., M.B. Cantab., has been appointed Medical Officer to the Bedford Union Workhouse.

GRAY, W. G., L.R.C.P. Edin., M.R.C.S., has been appointed Medical Officer of Health for the Holsworthy Urban Sanitary District.

HOWELLS, W., M.B., C.M. Glasg., has been appointed Medical Officer of the Workhouse, Brecknock Union, vice W. M. Parham, resigned.

HULBERT, E. B., M.D. Durh., M.R.C.S., L.R.C.P., has been appointed Second Assistant Medical Officer to the St. Marylebone Infirmary, North Kensington, W., vice E. Worley, resigned.

HUTCHENS, H. J., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Superintendent of the Plague Hospital, Brisbane, Queensland.

LEONARD, NORMAN, has been appointed Analyst for the Borough of Northampton, vice Messrs. Savete and Ross.

MCFARLAND, B., M.D., M.Ch. Irel., has been re-appointed Medical Officer for the Lincoln Workhouse.

MCWALTER, J. C., L.R.C.P., L.R.C.S. Irel., has been elected a Fellow of the Royal Institute of Public Health.

MORICE, C. G. F., M.D. Brux., F.R.C.S. Eng., has been appointed Sanitary Commissioner for Westland and Buller, New Zealand.

NOURSE, W. J. C., F.R.C.S. Edin., has been appointed Assistant Surgeon to the Central London Throat and Ear Hospital, Gray's Inn-road, W.C.

PECK, H., M.D. Edin., D.P.H. Camb., has been re-appointed Medical Officer of Health by the Chesterfield Town Council.

PLATT, J. E., M.S. Lond., F.R.C.S. has been appointed Honorary Assistant Surgeon to the Manchester Royal Infirmary.

WEAVER, J. J., M.R.C.S., has been appointed Medical Officer of Health for the Borough of Southport, vice H. H. Vernon, deceased.

WEBSTER, F. J., M.R.C.S., has been appointed Medical Officer of Health for the Vaynor and Penderyn Rural Sanitary District, vice T. J. Dyke, deceased.

WEIGHTMAN, E. J., M.B., C.M. Edin., has been appointed Medical Officer of the Workhouse and Children's Homes, Middlesbrough Union, vice L. G. Davies, resigned.

WILLIAMS, W. R. B., M.B., M.R.C.S., has been appointed Assistant Resident Medical Officer to the Mill-road Infirmary, Liverpool.

WHITAKER, E. T., M.B., C.M. Edin., B.Sc., D.P.H. Camb., has been appointed Medical Officer of Health for the Wem Urban Sanitary District.

WOODFORD, E. V. R., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the No. 1 Sanitary District and the Workhouse of the Abingdon Union.

WYNNE, WALTER, M.B., C.M. Edin., has been appointed Medical Officer of Health by the Rye Rural District Council.

Vacancies.

For further information regarding each vacancy reference should made to the advertisement (see Index).

ALTON CAMP. — HOSPITAL AND CONVALESCENT CAMP FOR SICK, WOUNDED, AND CONVALESCENT SOLDIERS (now in course of erection).—Positions on the Medical and Surgical Staff. Applications in the first instance by post, addressed Manager, Absent-minded Beggar Relief Corps, Room 44, Harmsworth-buildings, Tallis-street, London, E.C.

BEDFORD COUNTY HOSPITAL.—Assistant House Physician. Salary £25 for six months, with board, lodging, and washing.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street, Birmingham.—Assistant House Surgeon. Salary £60 per annum, with apartments and board.

BOROUGH OF BOOTLE HOSPITAL FOR INFECTIOUS DISEASES.—Resident Medical Superintendent, unmarried. Salary £120 per annum, with board, washing, and apartments at the hospital. Apply to the Chairman of the Health Committee, Town Hall, Bootle.

BRADFORD ROYAL INFIRMARY.—House Physician for 12 months, unmarried. Salary £100 per annum, with board and residence.

BRECON INFIRMARY, No. 6, Bulwark, Brecon, South Wales.—Resident House Surgeon, unmarried. Salary £100 per annum, with furnished apartments, board, attendance, fire, and gas.

BRISTOL EYE HOSPITAL.—Locum Tenens for the House Surgeon for two months. Salary 2½ guineas a week, without residence.

CARDIFF INFIRMARY.—Assistant House Surgeon for six months. Salary at the rate of £50 per annum, with board, washing, and apartments.

CARLISLE DISPENSARY (not provident).—House Surgeon. Salary £150 per annum, with apartments (not board).

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Registrar. Annual re-appointment, but tenable for three years. Honorarium 20 guineas per annum.

CHESTER GENERAL INFIRMARY.—Assistant House Surgeon for six months. Salary at the rate of £60 per annum, with residence and maintenance in the house.

CORNWALL COUNTY ASYLUM, Bodmin.—Junior Assistant Medical Officer, unmarried. Salary £120, rising £10 annually to £150, with board, furnished apartments, &c. Also Locum Tenens for one month or more. Terms £3 3s. and all found, with second-class return fare.

CORPORATION OF BIRMINGHAM—CITY HOSPITAL, Lodge-road.—Second Assistant Medical Officer. Salary £120 per annum, with board, residence, &c.

COUNTY ASYLUM, Rainhill, near Liverpool.—Assistant Medical Officer, unmarried. Salary commences at £125 per annum, with furnished apartments, board, attendance, and washing.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon for 12 months. Salary £100, with board, residence, and washing.

DERBYSHIRE ROYAL INFIRMARY, Derby.—Assistant House Surgeon for six months. Salary £30 for that period, with board, residence, and washing.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—House Surgeon and Assistant House Surgeon. Salary of House Surgeon £100 per annum, and Assistant House Surgeon £50, with furnished apartments, board, and washing in both cases.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY, Dumfries.—House Surgeon. Salary £50 per annum, with board and washing.

EAST SUFFOLK AND IPSWICH HOSPITAL, Thorofare, Ipswich.—Second House Surgeon for 12 months, unmarried. Salary £60, with board, lodging, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Senior House Physician for six months. Salary at the rate of £60 per annum, with board, lodging, and washing in the hospital.

GROVE HALL ASYLUM, Bow, London, E.—Assistant Medical Officers. Salary £175 per annum for Senior and £120 per annum for Junior, with board, furnished apartments, attendance, and washing in each case.

HORTON INFIRMARY, Banbury.—House Surgeon and Dispenser. Salary £80 per annum, with board and lodging.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, Bloomsbury, London.—House Physician for six months, unmarried. Salary £20, with board and residence in the hospital.

HULL CITY AND COUNTY LUNATIC ASYLUM.—Second Assistant Medical Officer at the Asylum, Willerby. Salary £120 per annum, rising £5 per annum to £150, with board, apartments, and washing. Applications to the Clerk to the Committee of Visitors, Town Hall, Hull.

LIVERPOOL STANLEY HOSPITAL.—Senior House Surgeon. Salary £20, with board, lodging, and washing.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, N.E.—House Physician for six months. Salary at the rate of £80 per annum, with board, residence, and laundry. Also Resident Medical Officer for 12 months. Salary £120, with board, residence, and washing. Applications to the Secretary, City Office, 27, Clement's-lane, Lombard-street, E.C.

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill, Stoke-upon-Trent.—House Surgeon. Salary £120 per annum, increasing, conditionally, by £10 a year, with furnished apartments, board, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £140 per annum, all found except board.

OLDHAM INFIRMARY.—Junior House Surgeon for one year. Salary £75, with board, residence, and washing.

PARISH OF SLEAT.—Medical Officer and Public Vaccinator. Salary £100 per annum. Applications to the Chairman, F. C. Manse, Sleat, Broadford, N.B.

PLYMOUTH BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £125 per annum, rising by annual increments of £10 to £175, with furnished apartments in the Asylum, board, and washing. Applications to the Clerk to the Visiting Committee, Municipal Buildings, Plymouth.

ROYAL HALIFAX INFIRMARY.—Senior House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing. Also Third House Surgeon, unmarried. Salary £50 per annum, with residence, board, and washing.

ROYAL INFIRMARY FOR THE SICK AND LAME POOR OF THE COUNTIES OF NEWCASTLE-UPON-TYNE, NORTHUMBERLAND, AND DURHAM.—Honorary Assistant Surgeon. Applications to the Secretary, Royal Infirmary, Newcastle-upon-Tyne.

ROYAL VICTORIA HOSPITAL, Bournemouth.—House Surgeon. Salary £80 per annum, with board.

SALOP INFIRMARY, Shrewsbury.—Assistant House Surgeon for six months. Salary at the rate of £60 per annum, with board and washing.

SCARBOROUGH HOSPITAL AND DISPENSARY.—House Surgeon for 12 months. Salary £90, with residence, board, and washing. Also Assistant House Surgeon for six months. Salary at the rate of £75, with residence, board, and washing.

SHEFFIELD UNION WORKHOUSE INFIRMARY.—Junior Assistant Medical Officer for the Workhouse Infirmary, Fir Vale, Sheffield, for one year, unmarried. Salary £50, with furnished apartments, board, and washing.

STAMFORD-HILL AND STOKE NEWINGTON DISPENSARY, 189, High-street, Stoke Newington.—Assistant Resident Medical Officer. Salary £100 per annum, with board.

TEIGNMOUTH HOSPITAL, South Devon.—House Surgeon. Salary £70 a year, with board, lodging, and washing. In lieu of stimulants or mineral waters £6 per annum will be given.

TUNBRIDGE WELLS EYE AND EAR HOSPITAL.—House Surgeon. Salary £60 per annum, with board, lodging, and washing.

UNIVERSITY COLLEGE, Cardiff.—Demonstrator and Assistant Lecturer in Anatomy, and Demonstrator and Assistant Lecturer in Physiology. Salary in each case, £120.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon for one year. Salary £75, with board, residence, &c.

WEST KENT GENERAL HOSPITAL, Maidstone.—Assistant House Surgeon for six months. Honorarium at the rate of £50 per annum, with board and residence.

WEST NORFOLK AND LYNN HOSPITAL, King's Lynn.—House Surgeon. Salary £80, rising £10 annually to £100, with board, residence, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL, Wolverhampton.—Assistant House Physician for six months. Honorarium at the rate of £75 per annum, with board, lodging, and washing.

Births, Marriages, and Deaths.

BIRTHS.

AUDEN.—On July 5th, at Bootham, York. Constance, the wife of George A. Auden, M.A., M.D. Cantab., of a son.

DONALD.—On July 4th, at Platt Abbey, Rusholme, Manchester, the wife of Archibald Donald, M.D., of a daughter.

FACEY.—On July 7th, at The Lodge, Maldon, Essex, the wife of W. E. Facey, B.A., M.B. Cantab., of a son.

GUTHRIE.—On July 2nd, at Belmont, Tunbridge Wells, the wife of T. C. Guthrie, M.B., of a son.

MILLS.—On July 6th, at Hill-street, Haverfordwest, the wife of Yarnold Mills, M.B. Lond., F.R.C.S. Eng., of a daughter.

WARD.—On July 9th, at Museum-street, Ipswich, the wife of Francis Ward, M.D., of a son.

WHITFIELD.—On July 6th, at Upper Berkeley-street, W., the wife of Arthur Whitfield, M.D., M.R.C.P., of a daughter.

MARRIAGES.

ADDISON—MOTTRAM.—On July 6th, at St. Bartholomew's, Norwich, Eldred Arthur Addison, M.R.C.S., L.R.C.P., of Coddenham, Suffolk, to Marion Watson, younger daughter of Alfred Mottram, Heigham Hall, Norwich.

BIRLEY—STOWELL.—On July 5th, at the parish church, Chorley, Hugh Kennedy Birley, M.D., of Weaste, Manchester, to Ellin Cecilia Stowell.

DOWDEN—KERANS.—On July 9th, at St. John's, Paddington, Richard Dowden, M.D., to Jessie Allen Kerans, second daughter of T. G. Kerans, of Southwick-place, Hyde-park-square, London.

WHITE—FRASER.—On July 3rd, at St. Michael's Church, Blackheath-park, Finch White, M.R.C.S., L.R.C.P., son of Colonel Finch White, late 85th Light Infantry, to Annie Violet, second daughter of the late James Fraser, of Newfield, Blackheath-park, S.E.

DEATHS.

HOWARD.—On June 22nd, at Elberon, New Jersey, Benjamin D. Howard, M.A., M.D., M.R.C.S., F.R.C.S.E., of New York, aged 64 years.

JAMES.—On July 9th, at 62, Comeragh-road, West Kensington, Henry James, formerly of Weybridge, Surrey, F.R.C.S., aged 83 years. No flowers by desire.

SQUIRE.—On July 6th, at Maitland-park-villas, Haverstock-hill, N.W., Robert Hemington Squire, B.A., M.R.C.S., aged 57 years.

STEELE.—On the 10th inst., at 33, Via S. Gallo, Florence, after seven years' painful illness unmurmuringly borne, Sarah Louisa, wife of J. P. Steele, B.A., M.D. Edin., and younger daughter of the late Rev. William and Lady Louisa Augusta Anne le Poer Trench.

WATERHOUSE.—On July 10th, at his residence, Croxteth-grove, Sefton-park, Liverpool, Charles Henry Waterhouse, M.D.

N.B. A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

"THE HONOUR AND DIGNITY OF THE MEDICAL PROFESSION."

OUR correspondent whose letter we printed last week thus continues his jeremiad:—

"Shall I turn to our great hospitals for relief from this intolerable monotony of unwholesome competition which is disastrous in the long run not only for our profession but also for the public? The other day I heard of a tradesman of undoubted veracity in the City of London who was advised to see a distinguished dentist at the West-end who holds the appointment of dental surgeon to one of our large medical schools in London. The fee which this dentist demanded was 30 guineas. When the patient said that this fee was rather more than he expected the dentist at once replied, 'Well, if you do not mind going to *my* hospital *my* assistant will extract five of your teeth, this will save five guineas and reduce my fee to 25 guineas only.' This incident, for which I can vouch, leads me to ask a few more questions. Why should the junior staff of our hospitals work for nothing and their seniors take the credit, and what is more the pay as well, if any? Why should the General Medical Council adjudicate that a medical man who covers an unqualified assistant at a midwifery case is guilty of infamous conduct in a professional respect, although he may be well aware of the abilities of his assistant, as well as being morally, legally, and pecuniarily responsible for the management and result of the case, and then immediately afterwards stultify themselves by bolstering up a Bill to make midwifery conducted by a nurse a legal act? Will a medical man be judged guilty of infamous conduct who covers one of these legal Gamps? Why should the Council of the Royal Colleges of Physicians and Surgeons support the Midwives Bill after selling their diplomas and licences to their members and licentiates and promising to protect them? Most of the censors of the Royal College of Physicians of London do not attend any midwifery and the members of the Council of the Royal College of Surgeons of England especially are debarred from attending any by the tenure of their office as surgeons to the large hospitals. Therefore what can these know of the requirements of the public or the profession so far as midwifery is concerned? Why should the just rights of the juniors in the profession be undermined and bartered away by their seniors? Why do not the heads of our profession constitute themselves as special examining bodies of chiropodists, manicurists, masseurs, and the like? Why do we find the names of medical men on the self-constituted boards of examiners of spectacle-makers, plumbers, &c.? We shall soon have them examiners of the colleges of boot and shoemakers, sanitary clothiers, and wooden leg makers, and this, too, with quite as much reason. Quite recently there has been an appointment of parish infirmary doctor offered for competition to women. There were some dozen candidates for the appointment at the munificent wages of less than £2 a week. Some of these women a few years ago pleaded that they wanted to enter the medical profession in order to attend their suffering sisters out in India. Does this wholesale competition amongst themselves for an appointment to attend paupers in London prove that the way to India is through the workhouse? Why should a medical man or woman accept less remuneration than a professional nurse, or the quill-driver who wrote out the advertisement, or the compositor who sets up the type, less almost than the very printer's devil, now almost extinct, who applies the necessary ink. I was dining out a short time ago when one of the guests said that he had to attend upon a jury, and this was exceedingly annoying and inconvenient, when another guest who did not know me intimately said: 'Why not get a medical certificate?' at the same time adding, '*Any* doctor will give you one for a shilling!' Shall we sigh and say, 'Alack and alas! is it not true?'"

AXIS TRACTION FORCEPS.

To the Editors of THE LANCET.

SIRS,—Would you, or some of your readers, oblige me by advising me as to the best form of axis traction forceps to purchase? Is there any real advantage in having Neville's arrangement attached to the ordinary Barnes-Simpson? I am, Sirs, yours faithfully,

July 11th, 1900. A COUNTRY SURGEON.

RAILWAY SANITARY ARRANGEMENTS.

A CORRESPONDENT writes:—"Are the water-closet and lavatory arrangements of corridor trains in the interests of public health? It seems to me that they are not. I have to-day travelled 250 odd miles in one such train, not overcrowded, and I had opportunity of noting that from one carriage alone that the visits to the lavatory were numerous, and some were made while the train was at a standstill in important stations. At the end of the journey myself and fellow-passengers, as is generally the case in summer, were very dusty. This dust was from the permanent way and carriage-fittings, I assume, as in this case the water-closet is usually open to deliver direct on to the ground. Thus the permanent way has become a receptacle for years past of human excrement which goes straight on to the line except so much as is driven by the impetus of the wind from the speed of the train on to its under-floor fittings, &c. I strongly suspect, if my surmise is right as to the general absence of receptacles, that if the under-floors, bearers, and wheels of the carriage were submitted to a careful examination they would reveal revelling myriads of microbes ready for revenge. Just fancy the scores of corridor trains which fly over our main trunk lines every day and the hundreds of people in all conditions of health, or otherwise, who use this modern 'convenience.' Surely the permanent ways, even in the stations, and certainly along the whole course of the line must be seething bacterial beds. It occurs to me that some arrangement might be made which, while meeting the needs of long-journey passengers in fast trains, might prevent this broadcast sowing of filth and disease. It is not as though the permanent way were subject to the influence of the plough on a friable soil, but this bacterial distribution falls on to hard rubble to be nourished by the sun and distributed by the wind. It would be an interesting inquiry whether platelayers, &c., and those who dwell in the immediate proximity of railways have any special record in the matter of disease. I may be quite wrong in my assumption that the absence of receptacles is general, and that if so there is death in the carriages. I think, however, you would contribute to the solution of what seems to me a most important national sanitary question if you would open your columns to the discussion of it."

WHO IS MR. W. HARTLEY AUSTIN?

Two correspondents write asking who is Mr. W. Hartley Austin, from whom they have received the following circular:—

93, Queen Victoria-street, London, E.C., 27th June, 1900.

DEAR SIR,—A large number of prominent gentlemen in your profession have recently been good enough to grant me a brief interview in order that I might explain an entirely new and most interesting investment, specially suitable for a medical man and guaranteed by a wealthy, old-established company with funds exceeding £2,000,000 sterling.

This investment is practically the *only* one under which you can take advantage of the extraordinary rapidity with which money accumulates at *compound* interest. You are, of course, aware that even a small sum will (if set aside each year and allowed to accumulate at *compound* interest) mount with great rapidity to a large total, while the ordinary investment at simple interest does not increase at all.

The investment I refer to enables you to set aside a moderate amount each year (from a £5 note upwards), to accumulate same at *compound* interest for a number of years, drawing the result either in cash or as a yearly addition to your income. Should you unfortunately *die* while the money is accumulating at compound interest your family or other dependents are provided for by life insurance *without further charge*.

I venture to ask if you also would grant me the favour of a few moments' conversation to bring this matter under your notice. If so, I feel confident you would be much interested in what I have to say, and I should not encroach in any way upon your valuable time.

Thanking you in anticipation of your returning the enclosed stamped postcard, I am, yours faithfully,

W. HARTLEY AUSTIN.

The circular encloses a stamped card to be signed by the recipient when making appointments with Mr. Austin, who clearly saves his correspondents as much trouble as possible. We have not the least idea who Mr. Austin is. We do not follow his arguments with regard to the difference between simple and compound interest. Presumably, "most prominent gentlemen" in the medical profession know that money accumulating at compound interest increases more rapidly than money accumulating at simple interest; but no accumulation will take place under either system if all the interest is annually spent, while an "ordinary investment at simple interest" increases by the amount of that simple interest if the simple interest is not spent.

We recommend any of our readers who have received this circular to ask Mr. Austin for the usual banker's reference before entrusting him with money, if not before seeing him. An investment that is "guaranteed by a wealthy, old-established company with funds exceeding £2,000,000 sterling" should have no difficulty in furnishing undeniable credentials.

"DEATHS UNDER CHLOROFORM."

To the Editors of THE LANCET.

SIRS,—"If they hear not Moses and the Prophets," &c., and so I say, if after all that has been advanced against the rule-of-thumb method of administration—no matter by whom the chloroform vapour be administered—then to say more is useless. Nearly every argument has been examined and good and sufficient reasons given by Dr. Edmunds for urging the adoption of the Krohne inhaler, and to designate such an exact method of administering chloroform vapour "the latest fad" in the face of such unanswerable evidence is a curious perversion of

the intellect. I am the last to deny the wonderful safety with which chloroform is administered by very many able men like Dr. Marshall, but the worst of it is that all who administer chloroform can hardly be classed in that list, otherwise we certainly should not have recorded the number of deaths that now unhappily obtain. Dr. Marshall may also be equally competent to dispense strychnine without measuring, but would he be justified in so doing? If not, how about the less competent? All I therefore venture to urge in connexion with this important question is that the safest mode of administering chloroform vapour should be worked out and adopted; that, in the hands of any ordinary practitioner with common sense, could hardly ever result in death. This, Sirs, I venture to think, in the absence of positive proof to the contrary, may be claimed for the "Krohne Inhaler, 1900."

Thanking Dr. Marshall for his reply,

I am, Sirs, yours faithfully,

C. J. HARRIS, M.R.C.S. Eng., &c.

Kilburn Priory, N.W., July 2nd, 1900.

A PROLIFIC FAMILY.

A PARAGRAPH in the June number of the *Maryland Medical Journal* states that among recent returns of births for the State of Maryland was a birth certificate sent by Dr. J. V. Wallace of Chesapeake City, who reported the birth on Feb. 23rd, 1900, of Warren O——. The grandmother and great-grandmother were present at the birth, while the great-great-grandmother was in a house in the neighbourhood. From this last-named lady, now only 72 years of age, there have sprung 11 children, of whom eight are living, and 50 grandchildren, of whom 18 are living. There are 22 great-grandchildren living, and there have been two great-great-grandchildren, one being the child Warren O——. The record does not give the number of great-grandchildren dead, but the figures given show that there have descended from this very superior mother 85 children, of whom 63 are living. The number of plural births is not given, but the oldest daughter, now 52 years old, had twins four times. This is a very remarkable record.

THE DUTIES OF A PUBLIC VACCINATOR.

To the Editors of THE LANCET.

SIRS,—As a subscriber to THE LANCET I shall be very glad if you will kindly answer the following question. I am a public vaccinator. Several persons in my district are summoned to appear before the magistrate for refusing to have their children vaccinated. I have subpœnas to attend the court and give evidence as to vaccination notices, &c. I want to know whether under the present Vaccination Act it does not come under the vaccination officer's duty to give all the evidence necessary to convict without the public vaccinator appearing in court. Also whether, in case I am bound to appear, I am entitled to a fee (half a guinea) for each case.

I am, Sirs, yours faithfully,

July 5th, 1900. X.

*** The duty of taking proceedings for the enforcement of the law devolves upon the vaccination officer. (See Schedule 4 of the Vaccination Act of 1898.) If, however, our correspondent has been subpœnaed he must attend. We should say that he is entitled to a fee for each case, but perhaps it would be as well for him to consult his legal adviser upon that point.—ED. L.

LIVING LARVÆ IN THE EAR.

To the Editors of THE LANCET.

SIRS,—The following, to myself at least, is an unusual experience and as a case of myiosis may be of interest. To-day a man consulted me with the history that some 10 hours previously he had been awakened from sleep by an unusual sensation in his left ear. He described it "as if he had wheels in his ear" and soon began to suffer pain and discomfort that increased to such an extent that he could bear it no longer and came to seek advice. On examining with a speculum and on inquiry I found that he had suffered many years from middle-ear disease. There were great swelling and inflammation of the tympanum and surrounding parts. On syringing out the ear with water I was astonished to see an animal some one-eighth of an inch in length make its appearance, and on further douching others of a like kind were washed out. I continued syringing till no more appeared and counted 14 larvæ, all alive. I finished syringing the ear with sol. hyd. perchlor., and the patient went away feeling quite relieved and free from pain. I presume these were the larvæ of a species of creophila.—I am, Sirs, yours faithfully,

D. J. DRAKE, M.R.C.S. Eng., L.R.C.P. Lond.,

June 21st, 1900. Medical Officer to the Ray Copper Co., Arizona.

BOOKS ON PHYSIOLOGICAL CHEMISTRY.

To the Editors of THE LANCET.

SIRS,—Will you kindly recommend a reliable work solely upon physiological chemistry? "A Text-book of Physiological Chemistry," by Olof Hammarsten, published for Wiley and Sons by Chapman and Hall, has been recommended. I am, Sirs, yours faithfully,

July 9th, 1900. STUDENT.

*** The book mentioned is a good one. Another admirable work is Halliburton's "Text-book of Chemical Physiology and Pathology," Longmans, Green, and Co. The most complete treatise which, however, is only suitable for advanced students, is Gamgee's "Physiological Chemistry," published by Macmillan and Co.—ED. L.

"AN APPEAL TO BROTHER PRACTITIONERS."

To the Editors of THE LANCET.

SIRS,—Did it ever strike your correspondent, "M.D.," that his pain in his hip-joint might be a neurosis—neuralgia—which, in my experience, is much more developed by climatic changes than "rheumatism," the latter also usually being improved by exercise? All "gout" is atonic nowadays, often showing itself as neuralgia pure and simple, and one constantly finds people calling a pain, especially if near a joint, "rheumatism," and considering the treatment for neuralgia and rheumatism is essentially opposite the mistake is a fatal one as regards curing the pain. I believe "M.D." would not find it to be a dangerous experiment were he to try a tumbler of Guinness's stout at luncheon and dinner—say, for a week—then alternate with the same quantity of champagne. Frequent gentle exercise with light dumb-bells (three pounds each) and a Turkish bath twice a week before dinner might in addition prove useful.

I am, Sirs, yours faithfully,

July 9th, 1900. F. ORTON, M.D. Dub.

"THE TREATMENT OF MORPHINOMANIA."

To the Editors of THE LANCET.

SIRS,—In reply to your correspondent's inquiry in THE LANCET of July 7th I had recently occasion to write to Dr. Emmerich of Baden-Baden *re* his treatment for morphinomania. Dr. Emmerich informed me that the articles he employs are already known pharmacopœial preparations, that he does not provide his material for general use, but retains it solely for his "Heilanstalt" (health resort). I enclose a pamphlet issued by Dr. Emmerich but regret that I cannot supply your correspondent with papers written by Dr. E. I had two which treated on "Morphinismus." From one I abstracted the following note: "The substitute (for morphia) is stated to be a plant decoction without a trace of narcotic, to which a considerable quantity of bodies containing tannin has been added, producing a mixture of acrid taste. This mixture precipitates morphia completely from its solutions."

I am, Sirs, yours faithfully,

W. HARRISON MARTINDALE.

New Cavendish-street, W., July 9th, 1900.

"A GOOD BICYCLE SADDLE."

SEVERAL correspondents have written in reply to our correspondent "B" in THE LANCET of July 7th, with regard to a bicycle saddle that does not chafe the thighs. Two strongly recommend the "Esmond" saddle, which is so suspended that it has a forward and lateral motion, the saddle moving with the rider. "There is no chafing and perineal pressure is almost abolished," says one of the writers. Another correspondent recommends the "Christie" saddle. Brook's B 90 receives two testimonials, while Dr. Churchward's patent hygienic saddle is said by the inventor not to produce "perineal pressure or friction" and receives the encomiums of an independent rider. Dr. Churchward, whose address is 206, Selhurst-road, South Norwood, writes to say that he will be willing to let any member of the profession have one of his saddles for approval if they will apply to him. One gentleman prefers a lady's saddle and finds the one that suits him best to be a Lycett pneumatic. From the correspondence we extract a hint that may prove useful to riders generally—namely, that by painting a saddle underneath twice a week with soft soap and paraffin the leather will become as soft as a glove.

A. A. B.—1. The *Ophthalmic Record*. 2. The Royal Eye Hospital, Southwark, or the Royal Westminster Ophthalmic Hospital, King William-street, Strand. 3. Swanzy's "Handbook of Diseases of the Eye" (Lewis, 12*s.* 6*d.*) for a general knowledge, or Professor Fuchs's "Text-book of Ophthalmology," translated by A. Duane (Lewis, 21*s.*), for more advanced studies.

Scandal.—So long as the tenants are orderly and well conducted—and our correspondent says that he has never seen anything to the contrary—we presume he can do nothing, but of course it depends upon the terms of the lease. Our correspondent is not the leaseholder. If he does not like the house he can leave it.

During the week marked copies of the following newspapers have been received: *Coventry Standard, Leeds Mercury, Bolton Journal, Sun (London), South Wales News, Southampton Observer, Nottingham Daily Guardian, Blackburn Weekly Standard, Liverpool Daily Post, Manchester Guardian, Bradford Observer, Birmingham Daily Post, Cornishman, Dundee Advertiser, Sussex Daily News, Oldbury Weekly News, Pioneer Mail, Times of India, Architect, Scotsman, Citizen, Builder, Yorkshire Post, Bristol Mercury, Newbury Weekly News, African Times, Devon Gazette, Umpire, British Invention, Kentish Mercury, Derby Mercury, Local Government Chronicle, Bristol Times and Mirror, Hertfordshire Mercury, City Press, Reading Mercury, Catholic Times, Surrey Advertiser, Local Government Journal, Brisbane Courier, Clifton Chronicle, The Telegraph (Brisbane), Nature, Justice, Chatham News, Blackpool Gazette, Leamington News, Dewsbury Reporter, Brighouse News Ashton Herald, Exmouth Chronicle, Goole Weekly Herald, Kettering Guardian, Nuneaton Observer, &c., &c.*

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 12th, 1900.

Date.	Barometer reduced to Sea Level and 32° F	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb	Dry Bulb.	Remarks at 8.30 A.M.
July 6	29·93	N.W.	...	115	70	58	56	61	Cloudy
,, 7	30·08	N.W.	...	115	66	54	53	58	Cloudy
,, 8	30·23	N.W.	...	108	63	51	53	60	Cloudy
,, 9	30·21	S.W.	...	112	73	56	56	61	Cloudy
,, 10	30·13	S.W.	...	125	88	55	57	62	Fine
,, 11	29·97	SSW	...	129	89	61	64	71	Fine
,, 12	29·93	S.E.	...	122	82	65	65	69	Hazy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.).

WEDNESDAY (18th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.)

THURSDAY (19th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.) University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.).

FRIDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), Lonpon Throat (2 P.M. and 6 P.M.).

SATURDAY (21st).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (16th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. M. Morris: Consultation. (Skin.)

LONDON THROAT HOSPITAL (204, Gt. Portland-street, W.).—4.30 P.M. Dr. Davis: Nasal Obstruction. (Post-graduate Course.)

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Mr. A. Baldwin: The Importance of Methodical Physical Examination.

TUESDAY (17th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Consultation. (Medical.)

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, W.C.).—3.30 P.M. Dr. Batten: Subacute Combined Degeneration of the Spinal Cord.

WEDNESDAY (18th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—5 P.M. Mr. M. Robson: Clinical Lecture:—Chronic Pancreatitis.

THURSDAY (19th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Hutchinson: Consultation. (Surgical.)

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Mr. Bidwell: The Application of Plaster-of-Paris Splints.

FRIDAY (20th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. R. Lake: Consultation. (Ear.)

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE, OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1900, which was completed with the issue of June 30th, and the Title-page to the Volume, were given in THE LANCET of July 7th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1900 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Office, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and agents are authorised to collect, and do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

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